Fig. 7.—Stone Relics found at Clumlie Tower.

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Excavation of a Pictish Tower in Shetland.

THE remarkable round towers with the remains of which the islands of Orkney and Shetland and some of the northern counties of Scotland are studded, have largely occupied the attention of Scottish antiquaries in recent years. They may still, however, be said to be practically unknown to students of antiquity in England, though the question of their date and origin was discussed some years ago in the pages of the *Quarterly Review*, and became the subject of a somewhat ardent controversy between the late Dr. James Fergusson, author of the *History of Architecture*, and Dr. Joseph Anderson, Keeper of the National Museum of Antiquities, Edinburgh. Fergusson, whose principle was to seek historic explanations for all monuments of antiquity, maintained that these structures were the work of the Scandinavians who conquered the Scottish isles and north mainland in the ninth century. Anderson, on the other hand, with the concurrence of those in Scotland who claim practical acquaintance with these remains, held that they must be referred to

the Celtic predecessors of the Norwegian conquerors. It was demonstrated that no buildings of an analogous kind had ever been found in Norway; and that the relics discovered in, or in association with, these towers have for most part been of an earlier period than the Scandinavian era in the islands, and, in point of fact, of a type that is essentially Celtic.

Following out this theory of a Celtic (or "Pictish") origin, it has been assumed, from the absence of reference to them by Roman

Fig. 1.—Castle of Mousa, Shetland.
(*From a photograph by Messrs. G. W. Wilson & Co.*)

writers and other circumstances, that these structures are post-Roman, but of date prior to the permanent occupation of the islands by the Scandinavians, which took place a thousand years ago. But the facts and probabilities of the case seem rather to warrant our assigning them, or many of them, to a more remote date; it may be as far back as the commencement of the Christian era, or earlier.

The partial preservation of these remarkable structures is due in some measure to their inherent strength, but mainly to the primitive character of the districts of which they appear to have been the constituted guardians, and the absence of the relentless energy of the

agricultural improver, who has usually been so successful elsewhere in obliterating the relics of an earlier system than his own. While those that remain are, for most part, in outlying districts of the north mainland and isles of Scotland, a few examples, approximately identical in design, have in recent years been discovered in the more southern districts, both in the neighbourhood of the Wall of Antonine and also at a considerable distance within it, *e.g.*, the great circular fort of

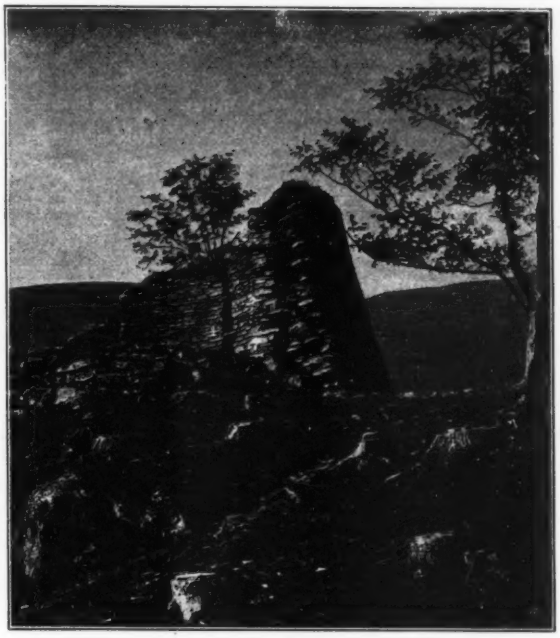


Fig. 2.—Remains of Tower at Glenelg, Inverness-shire.
(*From a photograph by Messrs. G. W. Wilson & Co., No.* 1763.)

Edin's Hall in Berwickshire, places where the conquering Norsemen never set foot. The conclusion seems unavoidable that these towers were characteristic strongholds, for a lengthened period, distributed over the greater part of the area of Celtic Scotland.

The tower in the Isle of Mousa, in Shetland (Fig. 1), is the most perfect now remaining. It still stands to a height of about 40 feet; and it, fortified by the corroborative testimony of the towers at Glen Beg in Glenelg, Inverness-shire (Fig. 2), and that at Dun Carloway in the Lews (Fig. 3), which are yet preserved

to a considerable height, has been accepted as the typical example of the whole. It is, however, one of the smaller specimens; and the lower portions which remain of some others exhibit slightly different and more complicated details of construction, both as regards the main buildings and the ramparts and subsidiary, and most probably secondary, erections, which in many cases surround them. While, therefore, it may not be admissible, from the limited number of examples in an adequate state of preservation, to formulate definitely a description that may be applicable to all

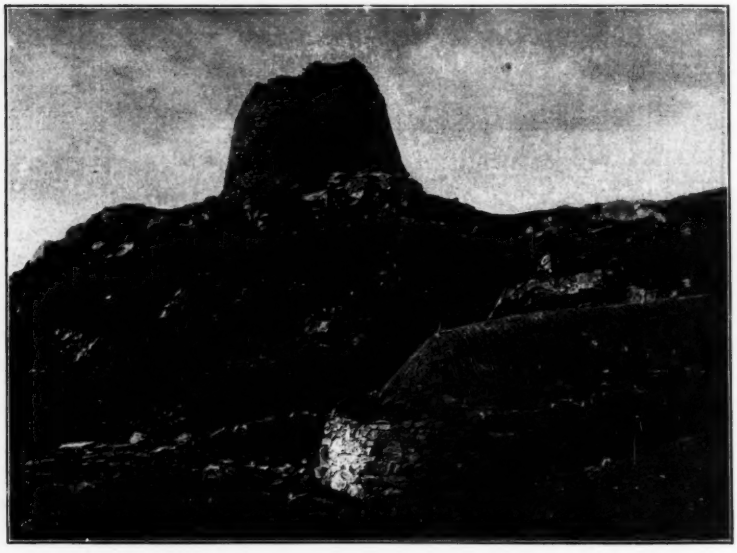


Fig. 3.—Dun Carloway, Island of Lewis.
(*From a photograph by Messrs. Valentine & Sons.*)

these edifices, the fact remains that one general plan is everywhere observable; and their aptitude for shelter and defence, in a primitive system of warfare, is most strikingly apparent. The mystery surrounding their date and origin, the people by whom they were occupied, and the precise mode in which that occupancy shaped itself in peace and in war, adds greatly to the interest which, as architectural relics, they possess for us. They may unquestionably be regarded as among the most ancient and most remarkable remains to be found in this or in any other European country.

Externally, these structures were simply large round towers of undressed masonry, with an inward batter, and truncated at the top. The door was the only external aperture, though there are exceptions to this; and the feature which renders them unique is the structural arrangements of the main wall. This wall, varying from 12 to 20 feet in thickness at the foundation, enclosed a central area of from 20 to 45 feet in diameter (at Edin's Hall, 56 feet). It was built solid to a height of 10 or 12 feet, packed with small stones and earth, and wholly destitute of lime, clay, or other cementing medium; but this

Fig. 4.—Central Area of Tower (or "Brough") of Clumlie, looking East.

solid mass of the lower wall usually contained at least two chambers, besides the entrance passage from the outside and the commencement of the staircase to the upper floors.

When a height of 10 or 12 feet was reached, the wall, up to that point solid, was continued to the top as a double wall, with a hollow space between of 3 to 4 feet in width. This space was made to form a series of horizontal galleries along the entire circuit of the tower, the flagged roof of each gallery being the floor of the gallery immediately above it. At Mousa a stair cuts through these galleries till it reaches the top, and galleries and staircase are lighted by a series of small

openings to the central court. In other towers there are indications that the stair was somewhat more complex in design.

Most of these towers have been demolished by the long corroding action of time and weather, and still more effectively by the hand of man. For most part they are mere heaps of ruin, though in not a few instances the lower portions of the buildings still rise boldly above the mass of destruction around them. Sometimes they are found on the edge of cliffs overhanging the sea in a formidable way, unapproachable except by individuals singly, and thus easily defended. Sometimes they are situated on islets in lochs, and sometimes in the centre of quiet townships. This last is the position of the tower of Clumlie, which is of only recent discovery, and the description of which, as it now appears after excavation, is the special object of this article.

The village of Clumlie (or Columbalie), in the parish of Dunrossness near the southern extremity of the Shetland mainland, is of great antiquity. It apparently commemorates a dedication to St. Columba, whose followers visited and, partially at least, Christianised the islands in the sixth and succeeding centuries. The site of a chapel, cell, or oratory, long ago demolished, is pointed out at "Kurkifield" close by. The village is built into the south side of a large grass-grown elevation of circular form, the apex of which has always remained exposed and free of buildings until recently, when a boundary wall, continued from the north, was built over its summit. This wall has, for the purposes of the excavation, been diverted from its position across the tower, and rebuilt, in semi-circular form, along its western circumference, a few feet beyond the line of the inner face of the main wall.

No trace of any buildings was visible on the surface, nor any distinct indication of a structure underneath. At the same time the configuration of the ground, with some resemblance to a terraced formation on the slope below, was sufficiently suggestive to induce me years ago to resolve to test the nature of the site by excavation.

A commencement was begun with gratifying results in 1888, when the east side of the main wall to a distance of 70 feet was discovered and traced to the foundation, as was also the entrance passage, standing almost entire to a height of about 5 feet, and partly lintelled. The work was resumed in 1890, with the countenance and aid of the Society of Antiquaries of Scotland, and the hearty approval of Mr. Bruce of Sumburgh, proprietor of the ground; and last year the excavation was completed so far as the circumstances at the time permitted.

The result showed that the apex of the rising ground was simply the ruin of a once massive and lofty tower; and the removal of earth

and stones laid bare not only the tower itself, so far as remaining, but, when more fully excavated, the whole interior area or central court enclosed within the great circular wall, as partly shown in Fig. 4.

The main wall, the inner face of which is preserved on the west side to a height of about 6 feet, varies from 16 to 18 feet in solid thickness. On the east side, while the inner face remains from 2 to 4 feet in height, the outer face, following the downward slope of the ground, was found gradually to diminish to a remaining height of less than a foot at the lowest point, except at the south-east, at the entrance to the interior, where it is about 5 feet high. The dilapidated outer face of the wall on the east side was to some extent replaced, as the easiest means of disposing of the building-stones which formed so large a portion of the excavated remains, and the result is to give an impressive idea of the size and massiveness of the tower when it existed in a state of completeness. The whole inner face of the wall, looking into the central area, was scrupulously preserved in its original state, as shown in the views, Figs. 4 and 6.

The entrance passage, through the thickness of the main wall, is 18 feet long. At a distance of 11 feet from the outside, two upright stones or jambs facing inwards, form a doorway, 5 feet 2 inches in height by about 5 feet 6 inches, with the lintel *in situ*. Here, no doubt, the main defensive door of stone or wood was placed; and on the right, immediately beyond these jambs, the usual guard chamber, entered by a small passage 2 feet above the floor level, was discovered and cleared out. Its greatest length is 9 feet 6 inches, and its greatest width 4 feet 8 inches. See the Ground Plan, Fig. 5.

On the south side of the central court the continuance of the excavation revealed a passage, leading into the interior of the wall, which was found to terminate in a second large chamber formed within its thickness. Of this chamber the extreme length is 14 feet 6 inches, and width 5 feet 3 inches. (See the Ground Plan, Fig. 5.) The excavation of the chamber was attended with some difficulty, owing to its depth and narrowness, and the state of surface accumulations around it, and was of more than usual interest. At a height of about 2½ feet above the floor-levels ultimately reached, a cist, 2 feet square, consisting of bottom, side, end, and covering slabs, was discovered. The cover and sides were carefully bedded and jointed with prepared clay, and the appearances indicated an interment, or deposit, of special importance. The most careful examination of the earth and unctuous matter within was, however, unproductive of a definite conclusion as to its contents, all traces of organic remains having disappeared. The position of the cist, half-way from the bottom of the chamber, proved that the tower

must have been in ruin long before it was placed there, and thus affords a distinct evidence of its great antiquity.

As is customary in these towers, an apparently secondary wall (sometimes inaccurately termed a "scarcement") is attached to the inner face of the main wall all round the circle. The purpose of this attached wall has not yet been clearly ascertained. In the present instance it begins at the right of the entrance passage at its inner end.

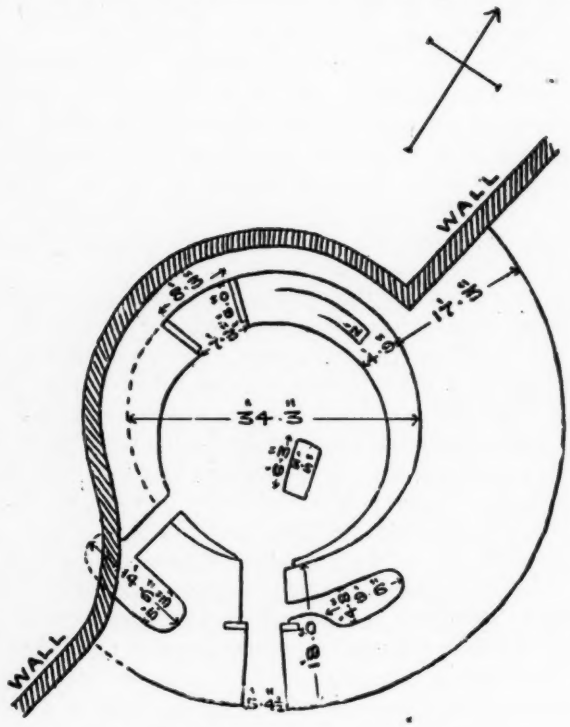


Fig. 5.—Ground Plan of Tower of Clumlie.
(*Drawn by Mr. J. H. Cunningham, C.E., F.S.A.Scot.*)

Its breadth, at first only about 6 inches, gradually increases till it reaches the opposite side of the central court, where it is about 6 feet. At this point a recess is formed in it, 7 feet 3 inches wide at the face, enlarging to 8 feet 3 inches at the back, where the face of the main wall to that extent is exposed. In this recess, in accordance with the analogy of towers of similar design, the entrance to the stairs which led through the galleries to the top of the edifice should be found,

and this remains to be determined when the excavation is finally completed.

The central area enclosed within the circle of the main wall was cleared to the floor-level. The wall does not describe a perfect circle, due, no doubt, to some extent, to bulging out caused by irregularity in pressure by the mass of ruin for ages resting upon it; and the diameter of the area, or central court, varies from 33 to 34 feet, about a dozen feet larger than that of Mousa, the typical example as usually represented. Including the thickness of the wall, the diameter from outside to outside will thus be about 70 feet.

Fig. 6.—View in Tower of Clumlie, showing main entrance and entrance to South Chamber.

Occasionally in these towers the remains are found of four or five walls projecting 5 or 6 feet towards the centre of the area from the inner face of the main wall or "scarcement", but no trace of such projections were discernible here. The only structural feature remaining within the court was a nearly rectangular depression in the floor, near the inner face of the entrance door, formed of stones 6 to 10 inches deep, set on edge. These stones were apparently injured by fire, and the space enclosed by them, about 7 feet in greatest length by 3 feet

to 3 feet 6 inches in width, was floored with flags, covered by a thick deposit of ashes. The flags were broken, and crumbled away on being disturbed. This would seem to have been a fireplace.

No trace of a well has as yet been come upon. A carefully built drain leads from the court to the outside under the flagged floor of the entrance passage.

The relics found consisted of a large number of grain rubbers, five whetstones of micaceous stone and two of sandstone, three whorls (two of steatite and one of schist), several hammer stones, numerous fragments of pottery, and of animal bones too much fractured for identification; shells and stone implements of different kinds. The smaller and more interesting of these relics have been deposited in the Museum of National Antiquities, Edinburgh; the others are mostly gathered together in the recess on the west side of the central court, as shown in Fig. 7. No metallic relic was found.

As the result generally of the excavation, it may be said that the central court, and fully one-half of the main wall, have been laid bare. Tenant-rights of surface, in the position of the remainder of the wall, render it impracticable to prosecute further excavation on the west side. But it is chiefly to be regretted that the main wall of the tower, no part of which remains at a greater height than about 6 feet, is so low as only to show the solid building of its lower stage. The distinctive features, stairs and galleries, were contained in the higher parts of the structure, which are gone. The roofs of the chambers have also disappeared.

Speaking generally of this long-buried tower now at last again exposed to view, one may recognise in it the place of strength of a small village community of vast antiquity. The dwellings of a few modern representatives of this community still cluster around its ruins. As a community they have been successively, first, pagan Celts, in probably the early ages of the Christian era; secondly, Celts Christianised at a later period; thirdly, pagan interlopers from Scandinavia, who overran and absorbed those native Celts in the ninth century, and in all probability were the demolishers of the tower, or, at all events, suffered it to fall into decay; and, fourthly, the descendants of those Scandinavians settled and Christianised in the century following. From that time the tower has come down through the Scandinavian and Scoto-Scandinavian period to the present day, first, as a picturesque ruin with the village comfortably reposing in its shelter; and, lastly, as a mysterious fairy mound, the contents of which no one ever had the hardihood of attempting to explore.

A word in conclusion as to the name "Broch", or "Brough", by which these towers have latterly come to be designated. This name is not properly a specific one, to be held as distinctive of any one class of structures. Brough is simply the Old Northern *borg*, Anglo-Saxon *burg*, *burh*, a fortification, and was applied, naturally enough, by the Scandinavians to these towers, as *burgh*, *borough*, were applied by Saxon-speaking people to castles, cities, places of strength, in England, Scotland, and elsewhere. The name has lingered with these structures in the Scottish isles (so far as under Scandinavian influence), and has mistakenly been appropriated by antiquaries as a distinctive appellation for them. The spelling "Broch" has been adopted by some northern antiquaries; but while convenient phonetically as determining the pronunciation, it seems to me that it is open to objection etymologically, and should be discarded.

The number of these Pictish towers in Shetland, as specified by Dr. Anderson in 1871, is seventy-five. Since then the sites of several others, including that of Clumlie now described, have been identified. Of these the castles of Mousa, Clickemin, Levenwick, and Clumlie have alone been systematically explored; the rest remain, with scarcely an exception, untouched. Mousa and Clickemin have been measured and planned by Sir Henry Dryden, who has fully reported the details in vol. v, Part 1, of the *Archæologia Scotica*. The excavation of the castle at Levenwick formed my own holiday occupation for a number of years. Begun with the enthusiasm of a schoolboy, armed only with spade and shovel, it was finally accomplished by the labours of willing workmen in 1869-71-73, and the results were described in a paper communicated to the Society of Antiquaries of Scotland, printed in their *Transactions*, vol. ix, pp. 212 *et seqq.*

Many considerations connected with the Pictish towers are shrouded in a mystery which baffles our best efforts in the attempt to unriddle. Their size, height, and massiveness demonstrate their costliness, and at the same time suggest difficulties as to the methods of their construction. Even at the present day, with all the advantages of improved mechanical appliances, increased wealth, and higher social attainments in every way, the building of such edifices in those thinly-peopled outlying districts would, to all appearance, be an impossibility. How, then, were they reared in vastly remote, intensely primitive, and presumably poverty-stricken ages? Another question which presents itself has never, I think, been considered with a view to solution. Were these towers, in respect of property and possession, individualistic or communal? Were they, like all other castles we know of, the

seats of local chiefs, district grandees? or were they tribal property for tribal use? It may be a question, further, whether their occupation was constant, or only occasional and temporary, as places of refuge and back-bone of defence, in circumstances of emergency. How were they finished at the top, and was the central court covered in or left open?

These and cognate inquiries arouse our inquisitiveness and accentuate the mystery which surrounds the Pictish towers. It is not merely their architectural features, as monuments of vast

Fig. 8.—Brough of Clickemin, Shetland—Exterior.
(*From a photograph by Messrs. G. W. Wilson & Co., No. 674.*)

antiquity, that interest us, but equally so the social problems and aspects of primæval civilisation that confront us in attempting to realise what their origin and use may have been. When one looks at the Castle of Mousa, as it at present stands, and as it has stood, according to the evidence of history, for a thousand years,[1] and it may be for perhaps many centuries more; and when we attempt with the

[1] The *Egills Saga* relates how the Castle of Mousa (*Moseyarborg*) was temporarily occupied, about the year A.D. 900, by Bjorn Brynulfson and his lady-love, Thora Roaldsdatter, fleeing from Norway. The *Orkneyinga Saga* records a similar occupation by Earl Erlend Ungi, another runaway lover, about the year 1156.

mental eye, as I have often attempted, to restore and repeople the numerous similar towers, the sites of which are at the same moment visible, the picture conjured up of human life, long passed away, in those far-off melancholy isles, is truly strange and bewildering.

It would be hardly fair to conclude this article without thanking Messrs. G. W. Wilson and Co., of Aberdeen, and Messrs. Valentine and Sons, of Dundee, for allowing their excellent photographs of the Pictish towers to be used for purposes of illustration. We may mention that a large number of other photographs of Scottish and

Fig. 9.—Brough of Clickemin, Shetland—Interior.
(*From a photograph by Messrs. G. W. Wilson & Co., No. 673.*)

English antiquities have been taken by both of these firms. The views of the Brough of Clumlie are from the amateur camera of Mr. James M. Goudie, Lerwick.

GILBERT GOUDIE.

Some old Towers at Liège.[1]

WHAT a crowd of reminiscences the sight of this old city calls up! What struggles it has gone through in the turbulent past; what an amount of fighting, killing, hanging, there must have been; what proud bishops, haughty nobles, independent bourgeois, and sturdy craftsmen must once have trod its streets! and to-day what sign is left of all this eventful past in the smiling city with its fine boulevards, its broad, peaceful river, bearing on the surface—which must have been so often in olden times sullied with blood—crowds of swift little steamboats, each laden with peaceful citizens on their way to one of the riverside haunts, or to the pretty Zoological Gardens, where many a family circle may be seen partaking of foaming bocks or of coffee and kramic? Yes, in truth, very little remains in Liège to remind one now of its past eventful history, except perhaps the old churches, which in many cases call to mind, either in the name of their founders, or by tombs within them, or by works of art in the form of carvings in wood or by castings in metal, the names of many celebrated men in the old, stormy times.

We have here given one or two of the old Romanesque towers still left unrestored, but which will no doubt, sooner or later, have to be either completely rebuilt, or so much repaired as to do away entirely with their present venerable aspect. They seem to stand in front and away from the rest of the edifice in their grim, solid, unyielding squareness, a fitting type of the men who built them; little of ornament there: rugged, grim, and almost repulsive in some cases is their massive simplicity. In one case (see Fig. 7, St. Barthélemy) a Renaissance doorway has been let into the great wall of one of these towers, and the giant seems almost amazed at the audacity of this graceful foreigner who thus attempts to become a part of himself, but who, in his elegant lines and classic proportions, seems even more at variance with his own rugged bearing than the slender Gothic choir appearing in the background.

But to return to the town itself, Liège was called in the old Roman

[1] Much taken from *Guide dans Liège*, by Dr. Fremder.

days Leodicus, or Leodium, and was held by the world's conquerors until the country was overrun by the Germans in the fifth century. In 565, Sainte-Monulphe built an oratory to Sainte-Cosme and Sainte-Damiens, and it was here, in the very cradle of this old episcopal town, that, later on, was built the church of Sainte-Lambert.

One of Monulphe's successors to the then bishopric of Tongres, Théodart, was murdered in 672 in the forest of Bivart near Spire; his corpse was brought back to Liège, and he was ranked among the martyrs, his tomb being visited by numerous pilgrims.

When Lambert became bishop he fixed his residence close to the tomb of his martyr predecessor, and therefore outside the bishopric of Tongres; very likely he was influenced in his choice of residence by a wish to be near the Court, for he entered greatly into the politics and intrigues of his time. It was to this that he owed his death, for he perished a victim to the anger of Dodon, Comte D'Avroy, whom he had offended. Sainte-Lambert was also ranked as a martyr.

Hubert succeeded to the episcopal throne and also resided at the place that had witnessed the martyrdom of his brother prelates. From this day the fortunes of Liège were decided; the state which surrounded these powerful prelates, their retinue, the refuges open to fugitives of all kinds near a tomb so venerated as that of Sainte-Lambert, the personal riches and fame of Hubert, who was son of the Duke of Aquitaine, and the gorgeous ceremonies of the Church, all contributed to the growth of the town.

Though Charlemagne may not have been born in Liège, as some think, yet he certainly held several important meetings there in the years 763-9, etc., and it was at Liège that the Grand Emperor settled with his sons the partition of their future kingdoms.

Hubert and his successors were not only spiritual fathers, but also great civil and political powers, and large landowners. Their domain grew under Charlemagne, Louis le Débonnaire, Lothaire, and Charles le Chauve.

In 880, Françon, one of the bishops, was unable to defend his diocese from the ravages of the Normans, and these barbarians covered the land with fortresses, at first intended as a protection to the surrounding people, but which became the resort of all the robbers and bandits and bad characters of the neighbourhood. Each fortress had its governor, and each governor was a tyrant, whose tyranny extended up to the domain of his neighbour.

Notger, archbishop from 971 to 1008, began the task of getting rid of these pests, and he destroyed in the neighbourhood of Liège as

many of these castles as he could, by ruse or by force; every means to him was good, even where religion was called in as an aid to destruction.

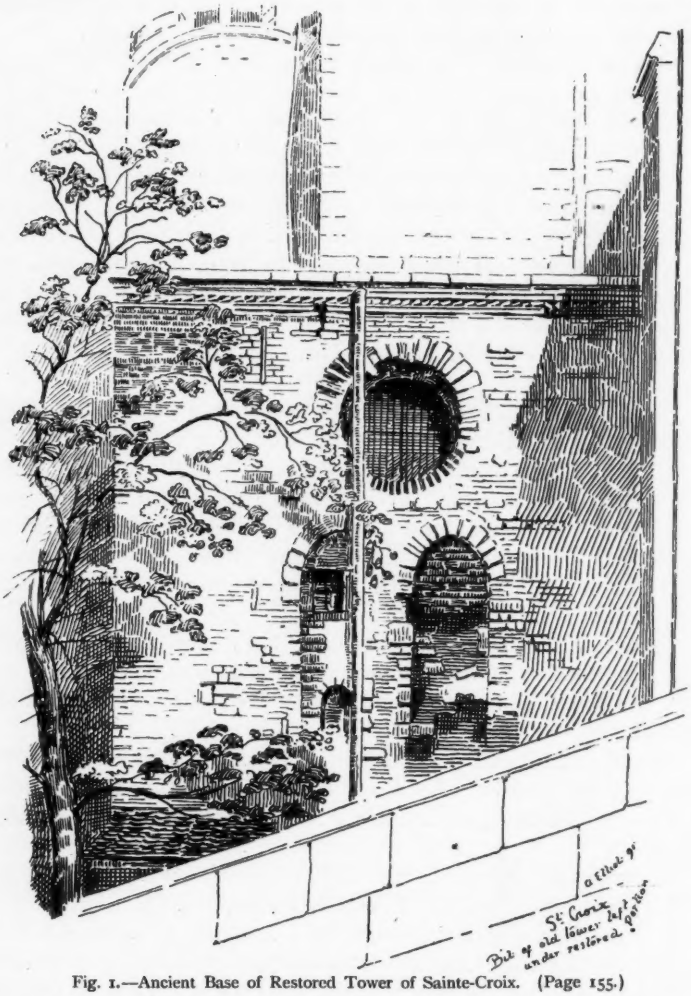


Fig. 1.—Ancient Base of Restored Tower of Sainte-Croix. (Page 155.)

One of the most celebrated of these ruses was that which he employed, in 979, against the Lord of Chèvremont, under pretext of baptising the son of this châtelain. He went to the castle with a troop of men wearing long capes like travelling clerks, and under

their capes they carried arms. When he and his troop had crossed the drawbridge, Notger gave the signal for a general massacre; not

Fig. 2.—St. Jean. (Page 155.

one was spared. The Benedictines deny the truth of this tale. On another occasion, thinking one of his barons, named Radus des Rees,

to be dangerously powerful, in that he had a castle within the town of Liège, Notger invited him to accompany him on a journey to

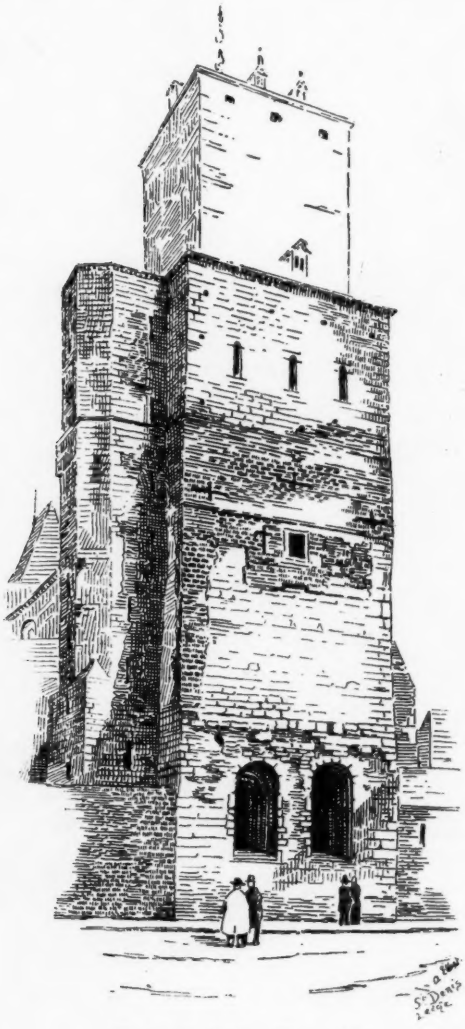


Fig. 3.—St. Denis. (Page 156.)

Germany, which lasted two years. When the baron returned, on arriving at the heights of Cornillon, overlooking the town, he sought in

vain to see the towers of his castle, but no towers and no castle were visible ; there, in its place, stood a church which had been built on the site of his old home by the orders of Notger, given before starting on their journey. This church was that of Sainte-Croix, and although the present Gothic structure is of much later date, and the old Romanesque towers have been rebuilt, there yet remains a little bit forming the base of the present restored tower (Fig. 1), which is perhaps a part of this old prelate's work, when he quietly deprived Radus of his home; though in this case the dispossessed one was given some territory elsewhere. As may be imagined, Notger would stand no murmuring or rebellion among the citizens, and it is said that once, in 971, on returning from a journey to Germany, and hearing that something of the kind was going on, he entered the city by stealth and set fire to the Town Hall, burning 240 citizens therein assembled, and then hung many others to the doors of their houses.

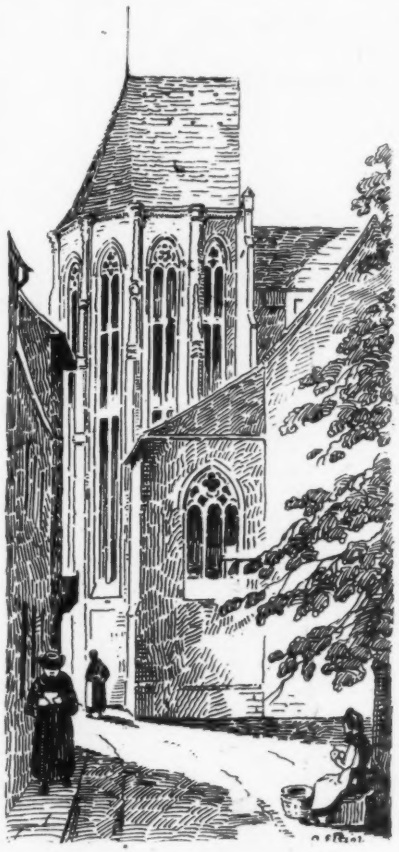


Fig. 4.—The Choir of St. Dennis. (Page 157.)

The remains of this high-handed old bishop may be seen in the sacristy of St. Jean l'Evangeliste, and they show that he must have been, as we may imagine, a man of great physical strength as well as intelligence. The monkish chroniclers say: "O! Liège, tu dois Notger au Christ et le reste à Notger" (*Notgerum Christo, Notgero cætera debes*). The church of St. Jean (Fig. 2) is one of the old parish churches, but it was nearly entirely rebuilt after the Revolution, from the plans of Barthélemi Remoz, who, however, adhered to the original

octagonal plan, but the cloisters still retain some of the earlier Gothic fourteenth century work, and the tower here drawn is probably

Fig. 5.—St. Jacques. (Page 157.)

contemporaneous with Notger himself. His tomb is in one of the chapels on the right. The church of St. Denis (Fig. 3) was also a gift

from Notger to Liège, and was consecrated by him in 990. The huge walls and the windows of the nave, as well as the tower, probably are a part of his work; the choir is Gothic (Fig. 4), and seems to have been added without the slightest reference to the rest of the building, for, seen from the outside, it stands up by itself far above the roof of the nave. It just shows behind the tower in Fig. 3.

Balderic II, who succeeded Notger in A.D. 1008, was also more a man of war than of peace; to him Liège owes its most beautiful church, that of St. Jacques. Here, again, we see the solid Romanesque

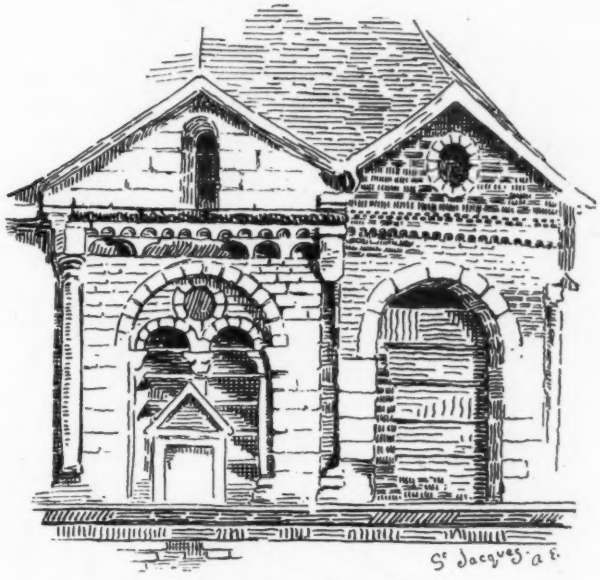


Fig. 6.—Details of windows of St. Jacques.

tower with its ancient portal (now being restored), left as a monument to this warlike old prelate. But Balderic II seems to have had some twinges of conscience in reference to his fighting days, for it is said that he founded an abbey of Benedictines as an offering for the bloodshed he had once caused.

The upper part of this tower has been entirely refaced at some bygone period, and the details therefore have been much altered, as may be seen in smaller drawings of windows (Fig. 6). There is a fine Renaissance doorway of sixteenth century by Lambert Lombard; the rest of the church is of florid Gothic.

The tower of St. Barthélemy (Fig. 7) is another of these old massive structures ; it is crowned by two modern Romanesque towers. A Renaissance door has been let into the front of the tower, and, as we

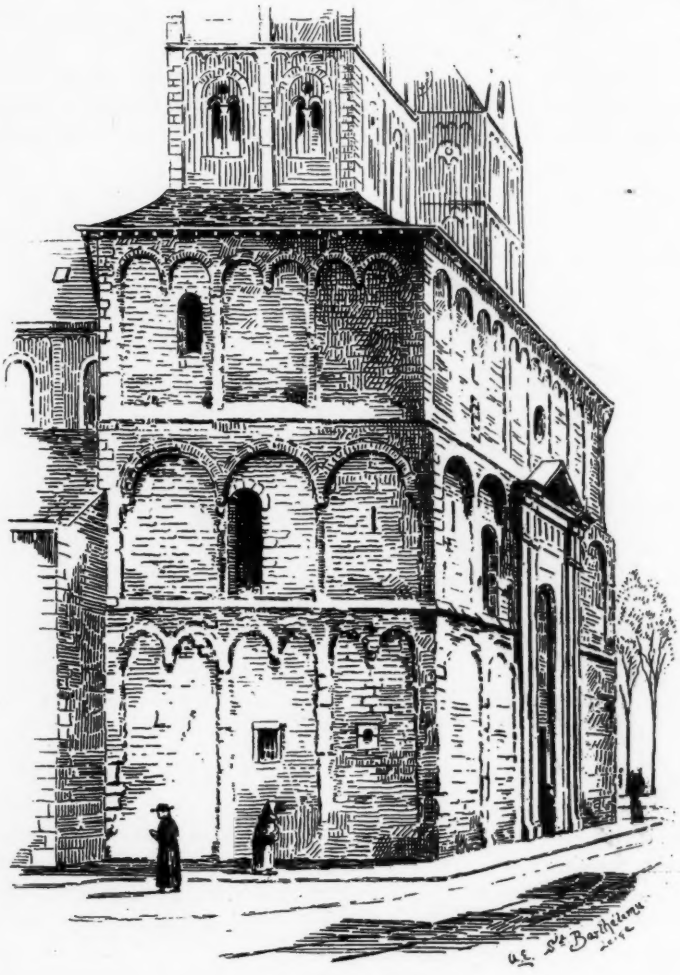


Fig. 7.—St. Barthélemy.

have already said, forms a curious contrast in its elegance to the solid and square proportions of the older edifice.

But who would grumble with these irreverent (as we should say

now) old architects? for their additions and restorations add far more to the historic value of the building than any amount of copying of the particular style in which the church or other edifice was originally built. In those days men were not afraid of their opinions, and each generation fully believed the work of its architects to be the best.

In the chapel on left of choir in this church was a most curious font,[1] Fig. 8 (now removed to Brussels), the work of one Lambert Patras of Dinant; it is in bronze, and placed on the backs of twelve oxen, also in that metal. On the font itself are five scenes from the lives of the Apostles: 1. Preaching of St. John to the people; 2. St. John, baptising the people; 3. Baptism of the Saviour; 4. Baptism of the centurion Cornelius by Saint Peter; 5. Baptism of the philosopher Crato by St. John. It dates from 1112.

The history of the town of Liège after this is one of continual strife between the several political and religious parties. The bishop, the chapter, the clergy, the nobles, the higher bourgeois, the lower bourgeois, and the people, the latter always fighting sturdily for their liberty, their motto being, "Pauvre homme en sa maison est roi"; and during all the struggles of the thirteenth and fourteenth centuries the upholding of this principle seems to have been their great aim. But all the above-named parties would unite against a common enemy, as when Bishop Jean de Bavière, on being driven from his diocese, reappeared bringing with him Jean-sans-Peur, Duke of Burgundy, and 35,000 men, the Liégeois united in defence of their liberties, and at the battle of Othée, on September 24th, 1408, behaved with great bravery, but in the end they were forced to yield. Jean de Bavière here well earned his name of "Jean-sans-Pitié", by hanging, beheading, and cutting-up those who had rebelled against him. In 1417, this wretch, who was never really priest, threw off his mitre and married; he was poisoned in 1425.

Jean de Waleurode was his successor, and under his rule Liège was more peaceful; but in the time of Jean de Keinsberg more troubles arose between the nobles and people; and under Louis de Bourbon occurred the most severe of all their punishments. This prince made himself so unpopular that he had to solicit the aid of the Duke of Burgundy; the Liégeois, in defence, begged aid from Louis XI of France, who treacherously joined their enemy. The unfortunate citizens were defeated in spite of their brave fighting, and subjected to the most awful cruelties; tied together in twos, they were thrown by scores into the Meuse, and their town was given up to pillage and fire;

[1] There is a very good reproduction of this font in the South Kensington Museum.

40,000 persons were killed or drowned in October and November 1468. Louis de Bourbon returns, and then commences the strife between him and William of Marck, the Wild Boar of the Ardennes, ending in the death of Louis. His successor, Jean de Hornes, thought it his duty to seek revenge, and so, under pretence of friendship, entrapped and slew William of Marck.

So the history goes on, a series of continual struggles; and out of it all Liège emerges full of life and prosperity, and taking her place

Fig. 8.—Font by Lambert Patras of Dinant. A.D. 1112. (Page 159.)

as one of the busiest among European cities. No doubt the presence of coal in such large quantities round the town has added greatly to its prosperity.

The discovery of coal is said to have taken place in 1189, and the legend runs thus: A poor smith of the village of Clenevaux, near Liège, named Houilos, found himself in great straits, for he had exhausted his store of firewood, and, having no money to buy more, his forge was rapidly becoming cold, and he saw himself in great likelihood of

starving. Whilst he was lamenting his wretched condition, a mysterious-looking personage appeared to him, and thus spoke: "My brave man, I see your trouble, but do not despair, only obey. Take your spade and a large pail, go to Publemont and dig in the ground; at about the depth of three feet you will find a kind of black stone, bring as much of it as you can carry here, break some of it up and place it in the fire of your forge." The stranger then disappeared.

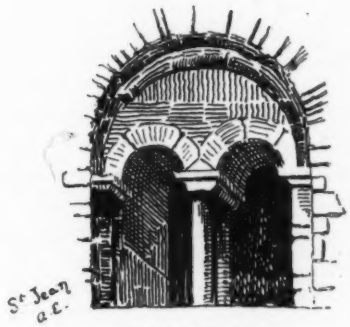
The astonished smith remained for some time undecided what to do. "Shall I go or not?" said he to himself, and after turning it over in his mind, he decided that there could be no harm in trying what would come of following the stranger's advice; so he set off to find the black stones, found them, and then put them on his forge-fire, and soon work was proceeding merrily. Pit-coal is called *Houille*,[1] after this man, to the present day.

The word used to describe the stranger by the old historians was "Anglus" (*Anglais*), and by them he was said to be an Englishman, and this has an air of probability about it, as coal was much used in London at that time. Later historians have not found this story miraculous enough, and so have changed Anglus into Angelus, and insist that it was an angel who appeared to Houillos.

Angelus or Anglus, the Liégeois may be well proud of their busy, bright town, and of their own long and stubborn fight for liberty.

[1] *Houille* is in all probability the same word as *Wheal* in Cornish and *Huel* in Breton, meaning *mine*.

ARTHUR ELLIOT.



Window, St. Jean.

The Celtic Brooch, and How it was Worn.

DR. HANS HILDEBRAND, in his excellent South Kensington handbook of *The Industrial Arts of Scandinavia* (p. 21), remarks that "every work of human art, higher as well as lower, has its shape determined by two agents: the end which it is to serve, and the taste of the people and the time of which it is a fruit." In other words, there is a utilitarian as well as an ornamental side to almost every object fashioned by man to satisfy his wants. The form of an object must depend primarily upon the practical use to which it is intended to be put, and the decorative features generally follow afterwards in due course. The function of the decorative features, however, should be to add grace and beauty to the original form of the object, but not to attempt to disguise the utilitarian purpose it fulfils.

No relics of antiquity are more deserving of study than personal ornaments, and of all personal ornaments perhaps the brooch is the most important as affording an insight into the character of the people by whom it was worn. Their ingenuity can be measured by the perfection of the mechanism of the working parts, their culture by the refinement of the ornament, and their skill as craftsmen by the finish of the workmanship. Much, again, is to be learnt of the habits of the people by investigating the different methods of wearing the brooch. Thus it is that almost every age and every country possesses its typical form of brooch. In the present article we shall confine our attention to the brooch used by the Celtic inhabitants of Great Britain in early Christian times (A.D. 450 to 1066).

Looked at from its practical side, a brooch is a contrivance for fastening together temporarily any two points on a garment. It is obviously a higher development of the pin. Going back to first principles, the pin may have been suggested by the natural spikes, or thorns, found in the vegetable world. It would not require much intelligence to see that a small knob added to the blunt end of the pin

would facilitate its removal from the fabric when it was required to be withdrawn, and would also prevent the pin going further than was desirable through the fabric. The problem, which was solved by the invention of the brooch, however, was one of much greater complexity, namely, how to secure the pin in position so as to prevent it from slipping out of the fabric in the direction of the head. This might have been effected either by fixing a removable knob, or stop of some kind, on the pointed end after it had been inserted in the fabric, or by connecting the head with the point temporarily, so as to form a complete ring for the time being. In the brooch the latter alternative is chosen. The pin must necessarily be straight, so as to pierce the fabric with the least amount of resistance, and the temporary connection between the head and the point has to be approximately semi-circular, the whole forming a ring shaped like a bow, the pin corresponding to the string and the body of the brooch to the bow.

In order to be able to remove the brooch from the fabric at pleasure, some contrivance must be hit upon by which a gap, or break, can be made in the ring, and be closed up again whenever it is desired to do so. The opening is attained by placing a hinge where the head of the pin joins the body of the brooch, and the closing by having a groove-shaped catch at the opposite extremity. A spring is also required to prevent the pin coming unfastened accidentally from the catch.

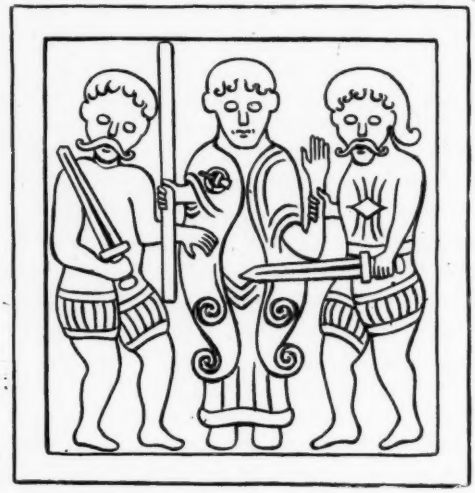
These different contrivances constitute the essential parts of a brooch, which, divested of its ornamental appendages, is represented by the ordinary "safety pin" of the present day. The "safety pin", by-the-bye, was known as early as the Bronze Age, yet someone has been found with the barefaced effrontery to take out a patent for it in the nineteenth century. This would seem to indicate that we are rapidly approaching the Age of Brass rather than that of Steel or Nickel, as some of our learned men prophesy.

If the rigid bow-like connection between the head and point of the pin be doubled we get an annular brooch, and if the central portion of the ring be filled in we get the discoidal brooch. In these cases the ring or disc is placed parallel to the plane of the fabric instead of at right angles to it.

The somewhat dry disquisition just inflicted upon the unsuspecting reader is necessary in order to place him in a position to fully understand the mechanism of the typical Celtic brooch, the leading characteristics of which are that the ring has a break in its continuity (whence the name "penannular"), and that the length of the pin considerably exceeds the diameter of the ring. The object of the break in the continuity of the ring is that it enables the spring-catch

to be dispensed with, the method of fixing the brooch in the dress being as follows:—First, the long pin is inserted in the fabric at two points close together, in such a manner that the apex goes right through it and appears again above the surface; the pin is then forced through the break, and the ring is given a turn through a right angle in the plane of the fabric, thus fixing the brooch by the friction produced by the drag of the weight of the garment on the pin.

We are now brought face to face with the question as to how the Celtic penannular brooch was worn. This can not only be conjec-

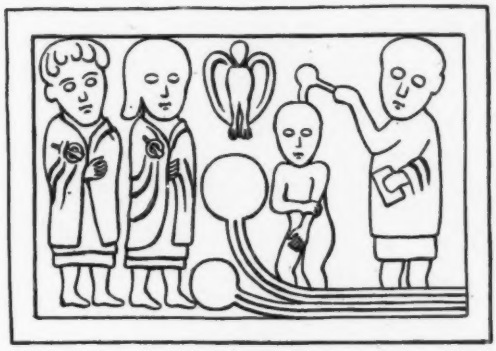


Christ seized by the Jews, on the shaft of the Cross of Muiredach at Monasterboice.

turally determined by an examination of the specimens to be found in museums, but fortunately can be settled beyond a shadow of a doubt in two ways, each of which confirms the other. First, there are at least two contemporary representations of persons actually wearing a penannular brooch (one on a cross at Monasterboice, co. Louth, and the other on a cross at Kells, co. Meath, in Ireland); and this ancient form of fibula has survived and is in use at the present time in Algeria and elsewhere.

I am not aware that there are any instances in early Christian art in Great Britain of a figure adorned with a penannular brooch, except those mentioned, but if so, I shall be glad of information on the subject.

The example at Monasterboice is on the bottom panel of the side of the shaft of the cross of Muiredach (or Murdoch), which was erected in A.D. 924. The scene represented on the panel has been conjectured by the late Prof. J. O. Westwood, from its similarity to a miniature in the *Book of Kells* at Trinity College, Dublin, to be intended for Christ seized by the Jews. If this be so, the central figure is our Lord, and on each side is a soldier armed with a drawn sword. The sculpture is in good preservation, considering its great age, and the details of the costume, which are very elaborate, can be made out fairly well. Our Lord wears a sort of cloak with a pen-annular brooch fixed on His right shoulder. The split in the ring of the brooch faces downwards, and the pin is inclined upwards at an

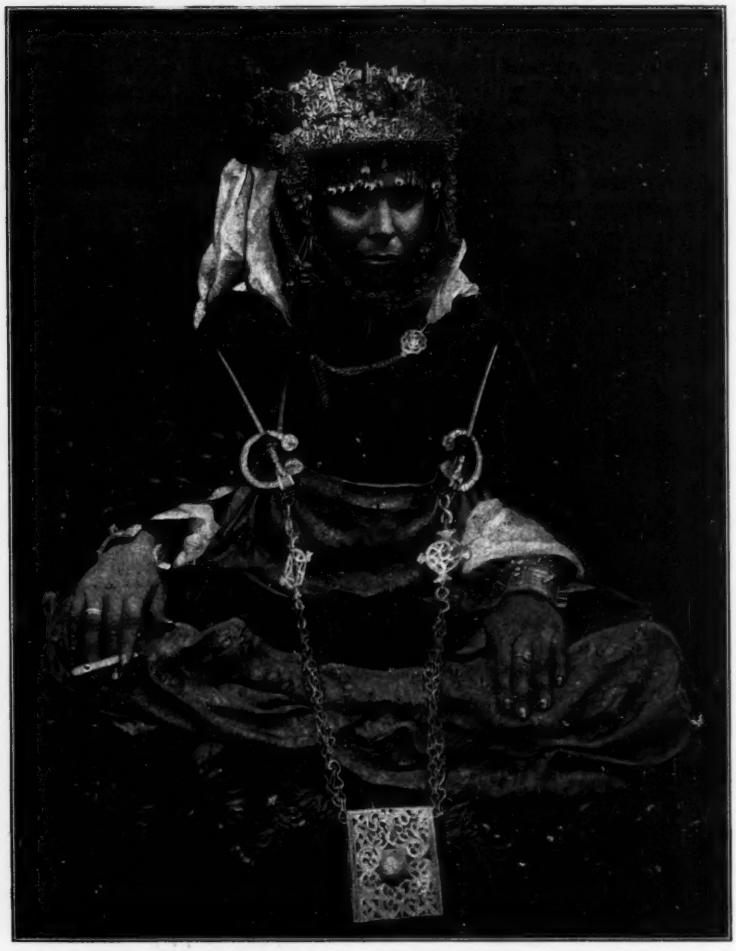


The Baptism of Christ, on the broken cross-shaft in Kells churchyard.

angle of about 30 degrees to the horizontal, the point being outwards. Probably the heavy head of the pin is placed downwards because its weight would always tend to bring it to this position, as the one of most stable equilibrium, but it may also have been to avoid injury from the point of the long pin.

The second example is on the bottom panel of the side of the broken cross-shaft in Kells churchyard. The exact date of this monument is unknown, but it is probably of the ninth or tenth century. The subject here shown is the Baptism of Christ, with the sources of the two imaginary rivers, Jor and Dan, which, when united, were supposed to contribute their waters to the Jordan, indicated conventionally in a most remarkable manner. John the Baptist pours the water over the head of Christ with a sort of ladle. Above is the Holy Dove, and on the left are two figures wearing penannular brooches exactly in the same manner as on the Monasterboice cross,

with the pin pointing upwards. In the case of the figure furthest to the left, the end of the long pin is inserted a second time into the fabric of the dress, beyond the ring.



Woman from Biskra in Algeria, wearing penannular brooches.

The method of wearing the penannular brooch at the present day in Algeria is clearly indicated on the reproduction of a photograph[1]

[1] Obtained from Albert Hautecœur, 2, Boulevard des Capucines, Paris.

here given. The only difference in the way of wearing the brooch in Algeria and in ancient Ireland is, that in the former case they are worn in pairs instead of singly, and there is a connecting chain with a small pendent scent-box hung from the middle. The size of the box is exaggerated out of all proportion by being placed nearer the camera than the rest of the figure.

By the kindness of my good friend Mr. Edgar Barclay, I am able to give illustrations of some beautiful silver brooches of the same pattern, but more highly ornamented, which he obtained during his travels amongst the Kabyles of Algeria. Mr. Barclay gives an interesting description of the dress of this primitive race in his *Mountain Life in Algeria* (Kegan Paul, Trench & Co., 1882). The Kabyle men wear the burnous, but the principal garment of the women is a simple rectangular piece of stuff woven with most effective geometrical patterns and taken just as it comes from the loom, without any part of it being cut into shape or sewn together. It is formed into a garment by winding it once round the body, leaving one side open, and the brooches, called "ifizimen", are pinned over the shoulder in such a way as to make a hole, or rather a loop, for the arm to pass through, and at the same time hang the dress to the shoulder. The only other adjuncts are a red band ("asfifi"), which passes over the shoulders, and crosses at the back, where it is ornamented with little red tassels, and a woollen girdle of bright colours.

Mr. Barclay says: "A frequent ornament is a round silver brooch called a 'táfizmith', with an opening in the centre crossed by a pin. Bosses of coral, as well as knobs of silver, which latter have a very very pearl-like effect, are dotted about it. These are effective pieces of jewellery, and with the sun shining on them glisten like moons. They are not adopted until a woman becomes a mother. On the birth of a girl the 'táfizmith' is worn between the breasts; on the birth of a boy, it is raised and gleams above the forehead. Remarking that many of these brooches offered for sale were damaged, a Kabyle gave a frank explanation, which was: 'When a man's wife was disobedient, and got beaten, her custom was to undo the "táfizmith" and dash it to the ground at his feet'."

In Great Britain the penannular brooches appear to have been worn singly, as they are never found in pairs; thus offering a contrast to the Scandinavian bowl-shaped brooches, which are always found in pairs, and were connected by a chain, as in the case of the Algerian brooches.

It would be interesting to know how the penannular form of

Silver brooches worn by the Kabyles of Algeria, in the collectio of Mr. Edgar Barclay.

Silver penannular brooch worn by the Kabyles of Algeria; in the collection of Mr. Edgar Barclay. Actual size.

brooch was first introduced into this country, for it seems hardly conceivable that it could have been invented here, or else it would not be found in Algeria, which never had any connection with Great Britain, it being extremely unlikely that so peculiar a type of brooch was evolved independently in the two countries. The most probable suggestion is that the Algerians and the ancient Irish got it from a common source, namely, the East, and that its introduction into our own islands dates from the time when the traffic in silver bullion from the East commenced. The existence of a trade route which was made use of by the dealers in silver bullion is made clear by the number of finds of Mahomedan silver coins associated with ingots, rings, and ornaments of silver, made both in Scandinavia and in Great Britain. Dr. Hans Hildebrand, in his *Industrial Arts of Scandinavia* (p. 81), informs us that "considerable stores of such coins, most of them of the Samanid dynasty, have been found in Sweden. It is satisfactorily proved by Russian finds, that these coins were brought from states near the Caspian Sea, through Russia, to the shores of the Baltic Sea, and thence to the commerce established by the inhabitants of Gotland over to that island. From Gotland, and probably also by direct intercourse with Russia, the Mahomedan coins were spread over Scandinavia, being of course more common in the eastern provinces of Sweden than in the western and in Norway." No less than 20,000 Mahomedan silver coins have already been discovered in Sweden, mostly dating between A.D. 880 and 955, the latest belonging to the year A.D. 1010.

Pennanular brooches have been found in association with Mahomedan coins of the ninth and tenth centuries, at Skaill, in Orkney; at Storr, in Skye; and at Cuerdale, near Preston, in Lancashire.

Although the general form of the penannular brooch is probably of Eastern origin, the decorative features vary according to the race of people who adopted it. Thus the examples from Algeria have Mahomedan ornament; those from Gotland, Scandinavian patterns; whilst those from Ireland and Scotland are thoroughly Celtic in design. With the decoration of the foreign specimens we are not now concerned, but a few words with regard to the various types found in Great Britain will form a fitting conclusion to this article.

The finest collections of penannular brooches are to be seen in the British Museum, the National Museum of Antiquities of Scotland, in Edinburgh, and in the Museum of the Royal Irish Academy in Dublin. A few good specimens are in private hands, and there is a splendid one from Orton Scar, in Westmoreland, in the Museum of the Society of Antiquaries at Burlington House. The brooches in the British

Museum still remain to be catalogued and illustrated; those in the Edinburgh Museum have been fully illustrated in the *Proceedings* of the Society of Antiquaries of Scotland, and are described in a most admirable manner in Dr. Joseph Anderson's Rhind Lectures on "Scotland in Early Christian Times" (2nd Series); and an exceedingly valuable series of photographs of those found in Ireland has been published under the direction of the Royal Irish Academy, by whose kind permission we are enabled to give reproductions of some of the best of them. We have also to thank the Society of Antiquaries of Scotland for the loan of the two blocks of brooches from Perth and Croy, and of the Himalayan woman at the end of the article.

The portions of the brooch, the forms of which are altered so as to adapt them better to the reception of ornament, are the head of the pin and the two terminations of the ring, where the break occurs. The two chief ways of altering the shapes of these parts are (1) by making them spherical, and (2) by expanding into a wide flat surface; the object in both cases being to increase the area available for decoration. Sometimes, also, the ring and the long end of the pin are flattened and widened for a similar purpose.

Silver penannular brooch with thistle-head terminations, from co. Kildare, Ireland.

As an example of a penannular brooch with bulbous terminations to the ring and head of the pin, we have one from co. Kildare in Ireland (R.I.A. photo, B 172). The knobs are covered with a prickly ornament produced by incised lines drawn diagonally in two directions, crossing each other, giving the whole the appearance of the head of a thistle. Several brooches of this kind have been obtained from different localities in Ireland, and there was one along with the three brooches of the type with flattened and expanded ends found with the Ardagh Chalice—a hoard of objects of purely Irish types—but

the type of their ornamentation appears to be more Scandinavian than Celtic. One of the best specimens from Skaill, in Orkney, now in the Edinburgh Museum, has a pin 1 ft. 3 ins. long, and the bulbous ends covered with zoömorphic designs similar to those on the Manx crosses, and on an iron axehead inlaid with silver from the Mammen How, Denmark.

Silver penannular brooch with discoidal terminations, from Croy, Inverness-shire.

We next come to brooches with discoidal terminations, of a date not later than the beginning of the ninth century, as the simplest example of which may be taken one from Croy, in Inverness-shire (*Scotland*

Silver penannular brooch with trefoil terminations, found near Perth.

Silver penannular brooch with expanded ends and four bosses, in the Museum of the Royal Irish Academy.

in Early Christian Times, 2nd Ser., p. 23). Another, found near Perth (*ibid.*, p. 21), has three raised heads on each disc; whilst one from Rogart, in Sutherlandshire (*ibid.*, p. 7), has four raised heads outside the circumference of the disc, so that the terminations are altered into the shape of a quatre-foil.

Lastly, we have brooches with flat expanded ends to the ring, of which kind three specimens in the Museum of the Royal Irish Academy at Dublin are illustrated, in order to show the way of ornamenting the expansions with one, four, and five raised bosses, having

Silver penannular brooch with expanded ends and single bosses, in the Museum of the Royal Irish Academy.

Silver penannular brooch with expanded ends and five bosses, in the Museum of the Royal Irish Academy.

zoömorphic designs on the background (R.I.A. photos, B 163 and B 164). The area of the head of the pin available for decoration is increased by making it into a cylindrical tube.

In the final stage of the development of the penannular brooch in Ireland it ceased to be penannular, if we may be permitted to use such an Irish expression. The break in the ring was entirely filled up, although its position can still be traced by the method of arranging the pattern, which survived in its old form long after the split had disappeared. The celebrated Tara brooch, in the Museum of the Royal Irish Academy (R.I.A. photo, A 161), affords a striking example

The "Tara Brooch" in the Museum of the Royal Irish Academy.

of this. The doing away of the break in the ring must have entirely defeated the original purpose the brooch was intended to serve, and it would, therefore, appear that these highly decorated brooches were

made rather for ceremonial use, than to be of any practical value as dress fasteners.

In conclusion, we would again point out that all the characteristic modifications of the form of the penannular brooch made by the Celtic artist arose from his desire to provide more space for the ornamental patterns, which were the very salt of his existence.

Dr. Joseph Anderson, who has been kind enough to look through the proofs of this article, and has given several valuable suggestions, contributes the following note *à propos* of the long pin :—

"In the *Brehon Laws*, vol. iii, p. 291, men are exempted from liability to fine for injury from the pin of their brooch (in a crush? or at a fair?) if they have the brooch on their shoulder so as not to project beyond it. Women also are exempt if they have their brooch similarly on their bosom." Vol. iv, p. 323, "a precious brooch worth an ounce [of silver?] is enumerated among the customary insignia of a chief."

J. ROMILLY ALLEN.

A Woman of Bussahir, on the Sutlej, Himalayas.

Notes on Flint Saws and Sickles.[1]

FOR a long time after the astounding revelations of lacustrine researches had shed a flood of light on the prehistoric civilisations of Europe, there was no surmise that the flints with serrated edges, which are so abundantly scattered over the country, had been used in any other capacity than as simple implements for sawing. This view, indeed, had been rather confirmed by the fact that many of them turned up fixed in a horn or wooden handle. The discovery, however, in the Polada lake-dwelling, near Desenzano, of a wooden casing containing four serrated flints fixed in a groove along one of its margins by means of a resinous substance, has given a new direction to the inquiry as to the manner in which these so-called saws had been used.

This implement (Fig. 1) was formed out of one solid piece of wood, about 16 inches long, with a flattened body terminating at one extremity in a horn-like projection 6½ inches long, and at the other in a button-shaped protuberance resting on a round stem 1¼ inch long. The pointed extremity is not continued in the same plane as the body, but curves, somewhat abruptly, to one side, at an angle of about forty degrees, immediately after clearing the last flint. The other end of the implement is totally different. Its widest part is the terminal disc of the protuberance, from which projects a slender perforated ledge left in the solid. As a handle, this end afforded a good grip for the thumb and two forefingers, and the little perforation at the end enabled the owner to carry the implement on his person suspended by a string.

These structural details will be readily seen by a glance at the photograph here reproduced (Fig. 1), which shows two implements of the same character. The upper one is absolutely perfect, and still retains its full complement of flints, but the other is merely the wooden casing, turned a quarter of a circle towards the former so as to exhibit the marginal groove and the bend of the horn-like handle. Both these

[1] A paper read before the Anthropological Section of the British Association for the Advancement of Science, at Nottingham, September 1893.

casings (to which I may add a third found in the same place, and also

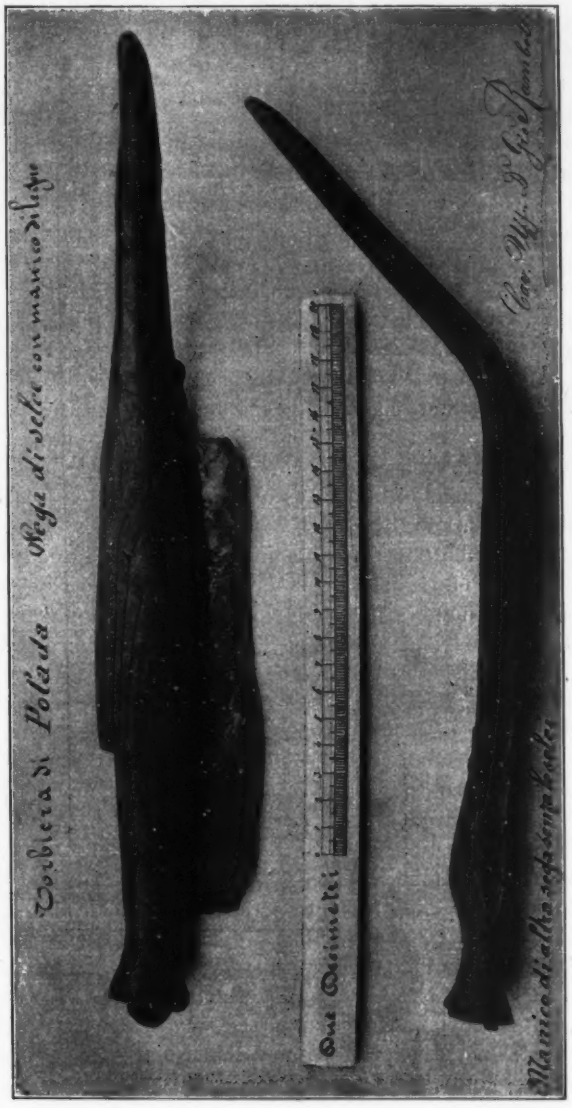


Fig. 1.—Flint Saw from the Polada Lake-Dwelling.

without flints) are so exactly similar in form, size, and general

structure, that one cannot help thinking they were all made by the same workman, or at least after a common pattern. One of the two casings *minus* the flints was picked up by a little girl, who stated that when she found it there were flints in it, but that they afterwards dropped out. But, without this evidence, there can be no difficulty in coming to the conclusion that the empty grooves were intended for flints, and that, in fact, originally, both these casings had been implements precisely similar to the perfect specimen. The four flints still *in situ* in the latter are serrated along their free, or cutting edge, and so arranged as to bring all the cutting edges into a straight line. Let the abruptness with which the line of flints terminates at both ends also be specially noted.

There can, in my opinion, be no doubt whatever that this unique implement was a double-handed saw. Its present owner, Dr. Rambotti, President of the College at Desenzano, had a favourite theory that the lake-dwellers who used it were a left-handed race, because the angular position of the horn-like handle forced the manipulator to hold the other end in the left hand, as seen in Fig. 2—a remark that applies to the other casings as well.

The Polada lake-dwelling has yielded a large assortment of industrial remains, and, being all kept together at the private residence of Dr. Rambotti, they form one of the most instructive collections in Italy. The flint objects are of special interest, both on account of their number and fine workmanship. Arrow and lance-heads, of all forms and sizes, exceed 300 in number; and isolated saws, *i.e.*, free from any casing, amount to nearly 100. One of the latter is notable by having the teeth on one side formed in slanting grooves, like those of a modern cross-cut saw. The character of the relics, as a whole, shows that the station belonged to the period of transition, just when the Stone-Age civilisation commenced to be influenced by the introduction of a few bronze objects.

Notwithstanding that this valuable collection has been in the possession of Dr. Rambotti since 1875, no account of it has yet been published, with the exception of the notice which appeared in my recent work on *The Lake-Dwellings of Europe*. While the proof-sheets of this notice were still in my hands, I happened to visit some Egyptian antiquities exhibited by Dr. Flinders Petrie in London, in the autumn of 1889. Here I saw a corn-sickle constructed on precisely the same principles as the Polada double-handed saw, and to the striking similarity of their construction I drew attention in a foot-note, as follows:—

"While visiting Mr. Flinders Petrie's collection of antiquities from Egypt,

lately exhibited in London, I was much interested in seeing a well-shaped wooden sickle, with a groove in which a flint saw was still cemented in its place. The wooden portion of this unique instrument is shaped like a modern corn-hook, with the exception that the handle turns downwards at a right angle to the cutting plane, and the opposite end runs out into a long sharp

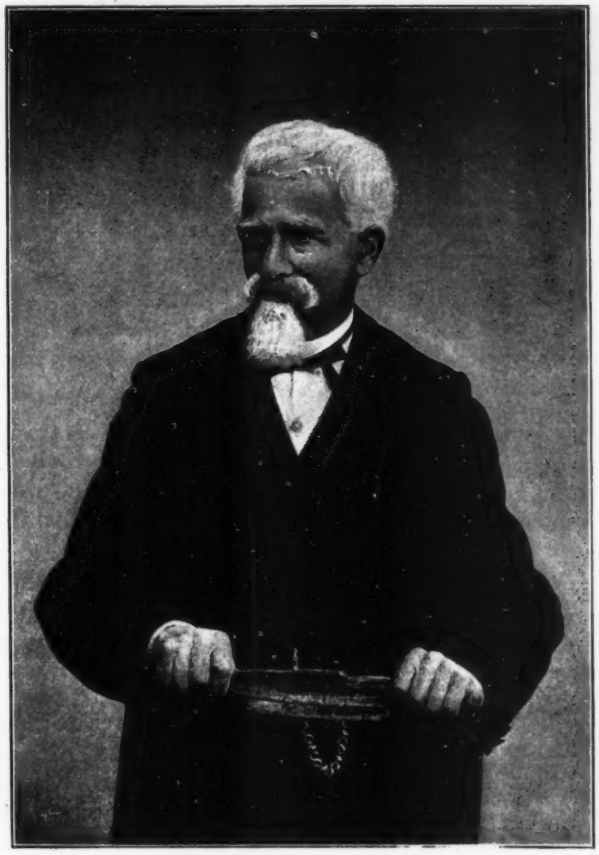


Fig. 2.—Dr. Rambotti holding Flint Saw from Polada.

point. It measures 12½ inches from tip to tip, and 17 inches from the point to the most bulging part of the body. From the same place were various other flint implements, and some semilunar knives or saws, precisely similar to those so common in the Scandinavian archæological area. Mr. Petrie also pointed out some flint objects which were undoubtedly an imitation of imple-

ments of copper and bronze with which they were associated. The tombs of Hawara, in which these relics were discovered, are said to be of the Twelfth Dynasty, dating some 2,600 years B.C." (P. 502.)

In the following year, and in the same place, Dr. Petrie exhibited another large assortment of industrial remains, from Kahun in Egypt, among which were two other sickles, almost identical with the one from Hawara. Subsequently, Mr. F. C. J. Spurrell published in the *Archæological Journal* (vol. xlix, p. 53) an elaborate article on these Egyptian sickles, entitled "Notes on Early Sickles", in which he directed attention to the Polada implement, as figured by me (*Lake-*

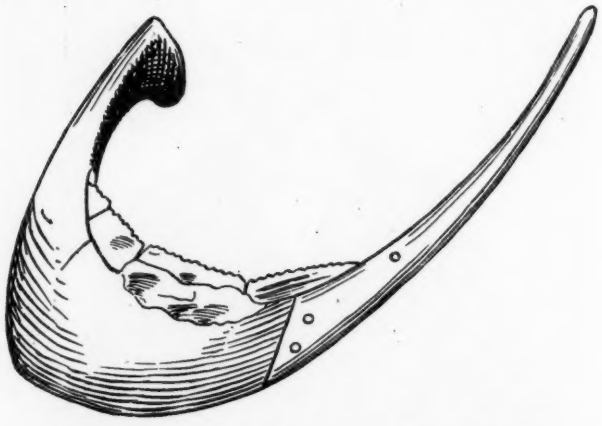


Fig. 3.—Egyptian Sickle from Kahun; 12th Dynasty; Upper side.

(*From a photograph by F. C. J. Spurrell, Esq., F.G.S.*)

Dwellings of Europe, Fig. 67, No. 12), and argued that it was a sickle and not a saw, as I had asserted. In this paper the author gives photographic illustrations of the two sickles from Kahun, together with an interesting description of the development of the sickle, and of the various forms it had assumed in proto-historic and early historic times. With regard to their structure he thus writes:—

"This sickle [dating from the Twelfth Dynasty], of which a figure is given (Figs. 3 and 4), is of acacia wood, dark and hard; it was a single piece originally, and apparently grown in a forced curve, with a view to the manufacture of the sickle. . . . The groove, which does not exceed half-an-inch in depth, was cut by metal chisels, copper being in general use at the time. The artificial teeth were set in this groove in a cement of clay, black Nile mud mixed with

gum. The teeth are partly buried in this groove, the cement is smeared over the junction of the teeth and the jaw, overlapping the teeth about a quarter-of-an-inch, and leaving about the same distance projecting free. These measures are for the centre of the saw; towards the point the proportions are reduced, at the near end they are increased. The tooth (only one being *in situ* when the implement was found) is a thin flint flake, notched at the exposed edge."

"The teeth are more or less regularly notched or serrated, occasionally some are found which can scarcely be said to be more than jagged. They vary in length from half-an-inch to four inches, the average being one inch-and-a-half. Some of the serrations are close together, and very finely executed, others are nearly a quarter-of-an-inch apart. The last flake in the

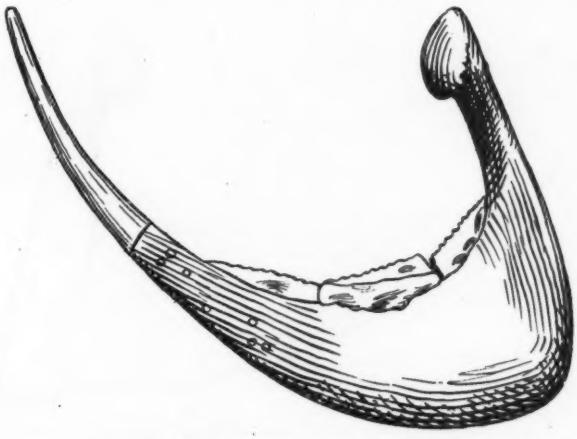


Fig. 4.—Egyptian Sickle from Kahun; 12th Dynasty; Lower side.
(*From a photograph by F. C. J. Spurrell, Esq., F.G.S.*)

angle was always modified in form, and was usually thicker and stronger than the others. Large numbers of these sickle-teeth are found in Egypt, especially when excavations are made in the older agricultural districts. They differ very little in general form from the earliest known date up to Roman times, except that the later ones are more clumsy in shape and trimming. Most of the teeth which are obtained in excavations, as well as those still in the sickles, are very much polished along the edge left free to cut with, and this bright line is usually distinctly marked at its lower edge up to which the cement extended."

From the above descriptive details it will be seen that the Egyptian sickles are differentiated from the Polada saws in the following respects:—

(1) The cutting edge in the sickle is curved to correspond with the shape of the body of the wooden casing. In the saw this line is straight.

(2) The terminal flints in the former shelve into the wood so as to bring the inner side of the gathering point, and of the posterior portion of the implement, into a continued line with the cutting edge. In the latter the cutting edge terminates abruptly at both ends.

(3) The gathering point of the sickle is in the same plane as the body, whereas the pointed extremity of the saws (between which and the former Mr. Spurrell sees an analogy) is bent sideways at a considerable angle.

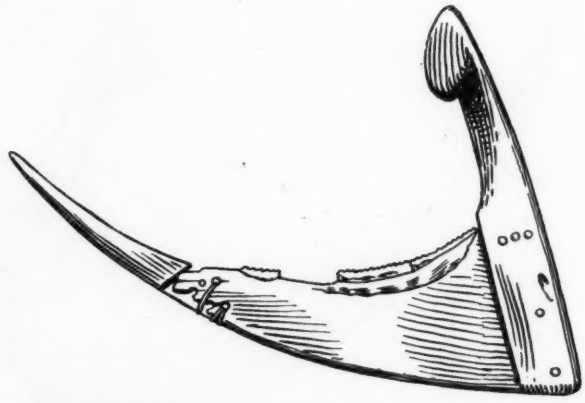


Fig. 5.—Egyptian Sickle from Kahun; 17th Dynasty; Lower side.
(*From a photograph by F. C. J. Spurrell, Esq., F.G.S.*)

The only material point on which I differed from Mr. Spurrell was that of classifying the Polada instrument among the sickles. As this point is of considerable archæological importance I made a polemic reply, in the same Journal (vol. xlix, p. 164), stoutly defending the accuracy of my own description and opinion.

Since the publication of these papers I have not looked further into the merits of this controversy, nor would I again have recurred to it had it not been the receipt, recently, of the photograph which exhibits the true characters of the Polada objects more faithfully than it was possible by a drawing. It seems that the question at issue interested Dr. Rambotti so much that he got these photographs specially taken in defence of his and my opinion. Next to an actual inspec-

tion of the objects a photograph supplies the best evidence in a question of this kind that can be produced; and with its exhibition I leave the matter in the hands of competent critics.

That the art of manufacturing compound implements and weapons by the insertion of flints and casings was not confined to Lombardy, but extended widely among the prehistoric people of Europe, there is some evidence to show. On this point I will first notice a strange-looking object (Fig. 6) found on the site of a lake-dwelling at Vinelz, in Switzerland. This station, which first came under the notice of archæologists in 1881, is the most typical of the period of transition (*Uebergangzeit*) which has yet been carefully examined. The relics, generally, are characteristic of the later Stone Age, and among them

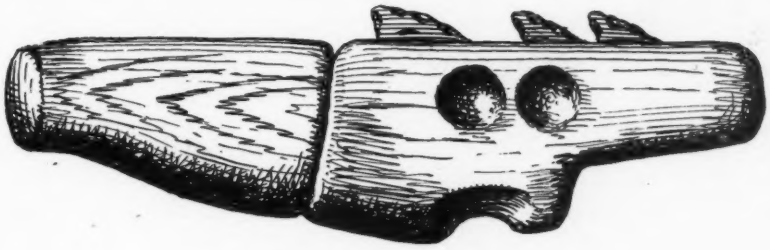


Fig. 6.—Flint Saw from Lake-Dwelling at Vinelz.

are no less than 100 rudely-made objects of copper (but none of bronze or iron), consisting of beads, axes, chisels, knives, etc. Hence this lake-dwelling is frequently referred to by the advocates of a Copper Age in Europe as furnishing irrefragable evidence in support of their theory.

But the special object which now concerns us is a piece of wood, about 9 inches long, which originally contained three worked flints, like conical teeth, inserted in a row along one side of it. These flints were separated from each other by an interval of rather more than half-an-inch, and their tips projected above the wood about three-eighths of an inch. This singular relic is now preserved in the Cantonal Museum at Berne, under the custody of Dr. Von Fellenberg, its discoverer. In 1883, shortly after its discovery, it was figured and described by Dr. Gross in his *Protohelvêtes* (Fig. 4, p. 15); and in 1888 by Heierli in the ninth report of the *Pfahlbauten* (Plate XVII, Fig. 3, and page 38). Also in *The Lake-Dwellings of Europe* (Fig. 185, No. 17, pp. 34 and 504).

Dr. Gross thus describes it :

"Les nombreux éclats pointus auxquel nous donnons le nom de flèches n'ont pas tous servi à cet usage ; car M. de Fellenberg a découvert tout récemment à Fenil (Vinelz) un curieux instrument formé d'une pièce de bois, recourbée en crochet à l'un des bouts et munie d'un côté de petites excavations dans lesquelles sont fixés, avec de la résine, plusieurs de ces éclats de silex pointus. Pour faciliter le maniement de cet outil, qui probablement était utilisé comme scie, on a ménagé près de la poignée, deux dépressions arrondies pour y placer les doigts."

Mr. Heierli also designates it a hand-saw :

"Eine Handsäge, bestehend aus einem hölzernen Schaft mit einer Rinne, worin in Erdpach 3 Feuersteinspitzen stecken, deren 2 noch feststehen. Zum Einsetzen zweier Finger bei der Handhabung des Geräthes sind auf der Seite desselben 2 Eindümpfungen angebracht."

Mr. Spurrell, however, claims this object as a portion of a sickle analogous to the Egyptian ones ; but for my own part I do not see very clearly how it could be used either as a saw or a sickle, as the teeth are so widely set that the mechanical operation of sawing, or of cutting corn, would be almost impossible. It, however, establishes on a wider basis the application of the principle of combining flints in casings for the purpose of making tools or weapons. A similar conclusion may be drawn from another class of objects found in Scandinavia, several of which are to be seen in the Museums of Copenhagen and Stockholm, and elsewhere. They are sometimes described as spear- and sometimes as arrow-heads. The one here represented (Fig. 7) is

Fig. 7.—Flint Spear-head in the Stockholm Museum.

after a drawing in Dr. Montelius' guide to the collection of antiquities in the National Museum in Stockholm, where it is described as "a bone arrow-head with a narrow and deep groove along each edge in which thin flint-flakes are fastened with a kind of resin ; traces also are visible of the resin with which the head was fastened to the shaft." This object is 5½ inches long and contains five flakes on each side. These flakes have very sharp edges, and the weapon, whether used as an arrow or a spear, must have caused a wound of a fearfully lacerating character on the unfortunate victim. Sir John Evans describes a curious knife in the Berlin Museum, constructed on similar principles (*Ancient Stone Implements*, p. 264).

Although my previous reply to Mr. Spurrell was necessarily of a controversial character I found occasion to make some general remarks on early saws and sickles, which, being still applicable, I may be permitted to quote:

"The specialisation of the saw as a separate tool from the knife, both of which were originally one and the same, must be dated far back in prehistoric times, for we find saws among the relics of the Reindeer period in France, the Kjökkenmöddings of Denmark, and other remains of a pre-neolithic character. During the neolithic civilisation in Europe the use of saws, mostly made of flint, was general; and implements so widely distributed both in space and time must have undergone certain modifications dependent on the social exigencies or fancies of the various peoples who used them. Hence, like all other stone implements, some forms of saws are recognised by archæologists to be peculiar to certain geographical or archæological districts, as for example the well-known semilunar types of Scandinavia. The abundance of the so-called flint saws during the Stone Age in Europe, contrasted with the rarity of this implement when made of bronze in the succeeding age, has attracted considerable attention. Of bronze saws only some half-a dozen examples have been collected among the remains of the lake-dwellings. This apparent falling off in their numbers I have endeavoured to account for partly by the large number of sharp-cutting instruments which suddenly appeared as a consequence of the knowledge and use of the metals, and were better adapted for many of the purposes to which the saws were formerly put, such as the making of arrow-stems, wooden handles, etc. On the other hand, it is to be observed, that the relative frequency of the sickles is reversed in these two ages. In the Bronze Age, next to the celts or axes, sickles are amongst the most common objects found on the sites of lake-dwellings, as well as among hoards and other sources of antiquities; whereas in the Stone Age there is scarcely any object known that goes under the name of a sickle. But there must have been sickles in the Stone Age as well as in the Bronze Age. The cultivation of corn was not confined to the latter, as we find agricultural implements and even various kinds of grain among the *débris* of the earliest neolithic stations. What, therefore, it may be asked, was the form and character of the implement which in the Stone Age supplied the function of the bronze sickle? Sir John Evans has offered some suggestions on this problem? In his *Ancient Stone Implements* he has figured three curved flints (Figs. 268-270), which he is inclined to think 'may not impossibly have supplied the place of sickles or reaping-hooks, whether for cutting grass to serve as provender or bedding, or for removing ears of corn from the straw. . . . . The analogy in form between these flint blades and those of the bronze reaping-hooks occasionally found in Britain is striking, when we leave the sockets by which the latter were secured to their handles out of view. These also have usually the outer edge sharp as well as the inner, but for what purpose I cannot say' (p. 320). But with the knowledge now supplied

by these recent discoveries we may go a step further, and at least surmise that compound sickles like the Egyptian ones might have been in use during the Stone-Age period in Europe. As a bearing on this argument it matters little whether the Polada implements be sickles or saws. They establish the important fact that the method of combining flints by fitting them up in a wooden casing was known and practised by the neolithic people of Lombardy. It is not therefore an improbable hypothesis that some of the so-called flint saws, now and then picked up on the fields, may have been the teeth of sickles lost or worn out and thrown away during the operation of harvesting. That none of these casings have as yet come to light is no doubt a regrettable missing link. When, however, we think of the imperfection of the archæological record, especially as regards the wooden relics of these early ages, owing to the liability of wood to decay, and that, indeed, it is only under exceptional circumstances that any of them have come down to the present time, the absence of such casings for sickles need not cause astonishment. The handles of bronze sickles, notwithstanding that their numbers are known to have been very great, are so extremely rare that only one or two specimens have come to light. Before lacustrine researches revealed the rich materials left by the long-forgotten lake-dwellers where could we point to a practical demonstration of the various methods of hafting the stone and bronze axes which have been collected in thousands all over Europe?" (*Archæological Journal*, vol. xlix, p. 174.)

On the supposition that implements, analogous to the Egyptian sickles and the Polada saws, were common in prehistoric times, it is probable that of the large majority of them nothing would be now extant except the eliminated flints, which of course would fall to be classified in the category of saws. Hence the question now to be investigated resolves itself into a careful study of these so-called saws, with the view of determining from their form, peculiarity of structure, or usage markings, in what capacity they had been formerly used.

In pursuing the investigation on these lines, the first thing is to define accurately the essential characters of a flint saw. In the earlier reports of Stone-Age relics the term is somewhat loosely used to designate knife-flakes accidentally chipped. Again, a worked flint-knife, *i.e.*, one with secondary trimming along its margin, has its cutting edge of necessity uneven, and hence it also is sometimes confounded with the saws. The special characteristic of a saw is an edge with teeth so regularly formed as to indicate that they were intentionally made for the purpose of cutting by means of a to-and-fro motion. An implement so manufactured, whatever the size of the teeth may be, must be regarded as a saw, unless the teeth are proved to have some other special function, such as those on both edges of some of the spear- and arrow-heads in Scandinavia. Nor must we

confound with the saws some flint-flakes, having a few artificially-formed gaps along their edge, which had been used for scraping wood, such as the shaft of an arrow.

According to the above definition saws have been manufactured by the inhabitants of the Reindeer Caves of France, some of which may be seen illustrated on Plate XLI of *Reliquiæ Aquitanicæ*. One of these, No. 10, from La Madelaine, is thus described: "Part of a narrow flake of white calcedonic flint, worn down on one side as a side-scraper, and dressed as a saw on the other. It retains thirteen notches, and is broken through the fourteenth." It is forty-three millimètres long, six broad, and three deep. Flakes carefully serrated at the edges have also been found among the *débris* of the Danish *Kjökken-möddings*, one of which is illustrated by Madsen (*Afbildninger*, Pl. 1, 15).

Of the numerous examples of saws recorded from the sites of the lake-dwellings of Central Europe, there can be no doubt that some so designated are merely knife-flakes mounted in handles. Others, however, must, with equal certainty, be regarded as true saws. Dr. Gross recognises this source of confusion, and, in his own descriptions of lake-dwelling remains, he carefully distinguishes between the saw and the knife. Thus in *Protohelvêtes*, Plate V, the following objects are thus described: No. 1, "scie montée dans une poignée de bois"; No. 13, "scie à dents large (rare)"; Nos. 25 and 26, "couteaux avec poignée en bois d'if"; No. 38, "scie en forme d'amande"; No. 39, "grande scie"; and No. 41, "couteau scie".

Similar distinctions are observed by other writers in Keller's various reports of the *Pfahlbauten*. Dr. Lachman, in his description of the antiquities found at Nussdorf (sixth Report), writes thus: "Besonders zierlich gearbeitete Exemplare sind fünf länglich-ovale Sägeplatten, welche eine Länge von 3″ bis 4″ und eine Breite von 0.75″ bis 1″ haben (Taf. vi, 14). Ein einziges Stück hat die Gestalt eines fast regelmässigen Rechteckes mit scharfen Ecken, ganz ebenen glatten Flächen und nur einer gezahnten Längenkante" (Taf. vi, 20). The writer then goes on to describe two other flint saws in handles, and portion of a semilunar knife or saw, found at Bodman, similar to those from Scandinavia (Taf. vii, 9, 10, and 32). Further examples of flint saws, still in their original handles, are figured in the seventh Report, Pl. 1, 4, Pl. XXI, 4 and 5, and in the eighth Report, Pl. II, 12, and Pl. VII, 20.

Another of the Scandinavian type, from Holstein, is figured in *Horæ Ferales* (Pl. II, Fig. 35); and others found at Schussenried, in the Mondsee, and in other parts of the Danubian basin, are figured

in the *Lake-Dwellings of Europe* (Fig. 34, No. 20, and Fig. 38, Nos. 2, 3, and 4). Throughout this work will be found numerous illustrations of flint saws, from various stations, among which is one from the Isola Virginia, in Lake Varese (Fig. 48, No. 2), and a remarkable one from Bodman, in a handle supposed to be made of reindeer-horn (Fig. 30, No. 17).

In *Musée Préhistorique* over a dozen flint saws, with and without handles, culled from various localities in Western Europe, are figured on Pl. XXXV-VI. M. Gabriel de Mortillet names several localities in the valleys of the Seine, Loire, and Rhone, which have yielded saws; and in one place, called l'Epargne (Indre et Loire), he states that there had been a factory for the making of a special type, "scie à coches latérales," said to be peculiar to France (*Le Préhistorique*, p. 512).

Sir John Evans has engraved three flint saws in his collection procured from the Yorkshire Wolds, which are thus described: "The largest (Fig. 199) has been serrated on both edges, but has had the teeth much broken and worn away on the thinner edge. Fig. 200 is very minutely toothed on both edges, and has a line of brilliant polish on each margin of its flat surface, showing the friction the saw has undergone in use, not improbably in sawing bone or horn. Fig. 201 is more coarsely serrated, and shows less of the characteristic polish which is observed on so large a proportion of these flint saws. The teeth are in many so minute that without careful examination they may be overlooked. Others, however, are coarsely toothed." (*Ancient Stone Implements, etc.*, pp. 265, 266.)

The same careful observer has also directed attention to another example (Fig. 202) having the teeth at one end of the flake. It was found in a barrow at West Cramore, Somerset, associated with numerous flakes and scrapers; and it may be noted that in the same barrow a bronze dagger was found. Another specimen, found in an old pit at Brighthampton, Oxon., has been engraved in the *Proceedings of the Society of Antiquaries* (vol. iv, p. 233).

Canon Greenwell has engraved a flint knife (*British Barrows*, Fig. 129, p. 285), in regard to which he says: "By far the most beautiful specimen I have yet met with; it is very delicately flaked over the whole of the convex surface, the edges being serrated with the greatest skill and regularity. It is another example of those implements which, when associated with interments after cremation, have been usually found to be themselves unburnt." With regard to the contents of another barrow in the parish of Rudstone he writes as follows: "Amongst the implements must be numbered seventy-nine

saws; seventeen scrapers; three leaf-shaped arrow-points; two pointed tools (probably for boring); several flint articles of uncertain purpose; a hammer-stone; and a piece of a greenstone axe. Many of the saws are very delicately serrated, some along both edges, and showing by the glaze upon the edge that they had been in use. The number of saws was very surprising, and far exceeded the aggregate of those obtained from all the barrows I have opened; and it is by no means easy to give any reasonable explanation of the phenomenon" (*ibid.*, p. 292). Other localities in England from which flint saws have been recorded are barrows, as well as the surface, near Bridlington (*Archæologia*, vol. xxvii, p. 74); a long chambered barrow at West Kennet, Wilts (*ibid.*, vol. xxxviii, p. 417); the downs, near Newhaven, Sussex (*Ancient Stone Implements, etc.*, p. 266); Liffs Low, near Biggen (*Vestiges of the Antiquities of Derbyshire*, p. 43).

Fig. 8.—Flint Saw from Glenluce, Scotland.

Fig. 9.—Flint Saw from Glenluce, Scotland.

Fig. 10.

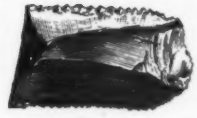


Fig. 11.

Flint Saws from Culbin Sands, Scotland.

Dr. Joseph Anderson has recently directed my attention to the large number of flint saws in the Scottish National Museum, collected chiefly on the sites of the blown sands at Glenluce, Culbin, and Golspie. The number catalogued up to date is as follows: Glenluce, 100; Culbin, 37; Golspie, 8; other localities, 15: a total of 160.

These implements are usually made of flakes, but sometimes of chips, carefully trimmed to a series of regularly serrated teeth. Some are triangular on section, and only one of the edges is serrated. Others, again, are serrated on both edges. The teeth are in most

instances minute, and made with great care. Along the edge of one specimen from Glenluce—a long, narrow, thickish flake, and serrated on both edges—Dr. Anderson counted thirty-five teeth in a length of 1¾ inch, and along this edge there was to be seen a narrow band of glistening polish, scarcely deeper than the teeth. This feature has been observed on many of these saws. Five examples (Figs. 8 to 12) of the Scottish saws have been engraved in the *Proceedings of the Society of Antiquaries of Scotland* (vol. xi, p. 584, and xxv, p. 497).

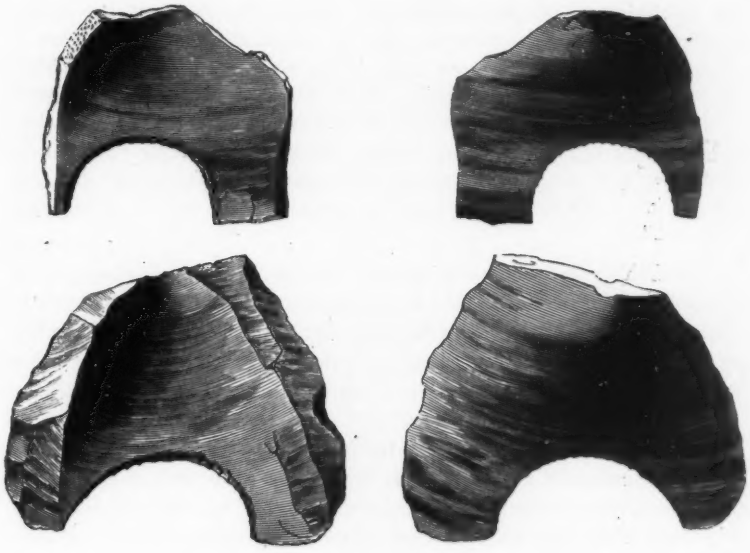
Fig. 12.—Flint Saw from Glenluce, Scotland.

Formerly, somehow, it was a current opinion amongst archæologists that flint saws were not found in Ireland. That this opinion is erroneous is clearly proved by Mr. Knowles, who writes to me that he possesses numerous examples of genuine saws, some of which he picked up among the *débris* of kitchen-middens on the sandhills of Ireland. He states that in addition to flakes "so serrated at the edge that a person at once comes to the conclusion that they had been prepared for use as saws", there is another class of implements largely found in Ireland called "hollow scrapers", many of which must undoubtedly be regarded as true saws, as the teeth are regular and well defined. This is the case with two specimens (Figs. 13 and 14) which Mr. Knowles has kindly forwarded to me, both showing a line of glistening glaze near the edge. One of them has a neatly worked edge in the form of a semicircle of almost mathematical precision, and rather less than an inch in diameter.

Reverting now for a moment to the so-called saws recorded as having been found in Egypt, all of which are claimed by Mr. Spurrell as sickle teeth:

"Formerly", he writes, "these teeth were called indiscriminately *saws*, and in museums are so labelled now. Passalacqua (*Cat. Rais*) and Pettigrew (*Mummies*, Pl. iv), claim such instruments as amongst the implements employed in mummifying. This is altogether a mistake, as the saw or saws they speak of were merely included amongst the small objects belonging to the person buried, and were deposited with the mummy in a parcel containing a palette and other things. A similar collection of miscellaneous objects in a little bag was found by Mr. Petrie in a Kahun dwelling, also including flint flakes and sickle teeth (Petrie, *Kahun*, p. 13). Sickle teeth are figured by Lepsius as saws (*Zeitschrift für Egypt: Sprache*, 1870), and by F. Mook (*Aegyptens vormetallische Zeit*, 1880), and Jukes-Browne (*Journal Anthrop. Institute*, vol. vii); also by E. Lartet (*La Mer morte*), and others already mentioned."

This sweeping generalisation Mr. Spurrell applies to the flint saws found by Schliemann at Hissarlik, by Flinders Petrie at Lachish in Syria, and by Canon Greenwell in the British barrows, as well as to those described by Sir John Evans from various parts of England. In support of his opinion he discusses the peculiarities of the structure of sickle teeth, and a special polish, seen on many of them, which he thinks could only have been caused by the friction of ripe straw. Among the sickle teeth, besides the irregularly serrated flakes similar to those actually found in their casings, he includes a number of very



Figs. 13 and 14.—"Hollow Scrapers" from Ireland, showing both surfaces.

differently constructed saws, and accounts for their peculiar forms by some curious speculations. Thus, a flake serrated on both sides he considers a sickle tooth which could be reversed by the reaper when the one edge became blunted. "The teeth", he observes, "fell out in the act of using, as well as wore out by smoothing down. These had to be replaced, nor could the sickle be used with a gap in the row. Sometimes the old teeth were merely reversed in the groove after serration; indeed, in anticipation of such an accident, teeth have been inserted already serrated at both edges." We are thus apparently asked to believe that a flint flake, nearly the whole of which was

embedded in hardened cement, could be there and then readily reversed without loss of time.

The following remarks are ingenious, but, before accepting them as an explanation of the phenomena in question, we should require more positive evidence that such a sickle had ever been used :—

"There have been found occasionally in Egypt some very large flint flakes, bearing the distinct signs of employment in sickles, such as careful serration, adaptation at the ends for fitting with others, the characteristic shape of the rearmost one, the brilliant polish, and occasionally the marks of still adherent gummy clay. But the depth at which they must have been inserted in the jaw precludes the supposition that they belonged to the light and elegant types of sickle we have been considering from Kahun. The thickness of the lower part of the flake is not mere clumsy work, but intentional, as shown by the trimming round the edges. It is difficult to believe that a groove could have been cut in the wood exceeding one inch in depth, suitable for the reception of such as these, without making the thickness of the blade too clumsy to be useful. It seems probable that these thick, deep teeth, were actually inserted into the jaws of animals from which the real teeth had been extracted."

Dr. Schliemann figures (*Ilios*, pp. 246, 445, and 583) a number of the saws so abundantly found in all the five prehistoric settlements of Troy. Many of these would be quite suitable for sickle teeth, similar to those from Kahun, and I am not, therefore, in a position to say that they had not been so used. Some are very finely serrated, more so than, it would seem to me, were requisite as sickle teeth. There are, however, among the Hissarlik implements, others which could not have been used as sickle teeth, even with the instrumentality of a natural jaw-bone as a casing. That represented by Fig. 665 is nearly 2 inches broad, and has a cutting edge 4 inches long. It is squared at both ends, and "bears marks of having been fixed in a wooden handle".

Another, with a slightly longer cutting edge, is thus described :—

"No. 1342 is a large silex, with marks on its upper part of its having been cased in a wooden handle. To the many localities enumerated in the preceding pages where similar flint saws are found, I can now also add Egypt; for in Fr. Mook's *Aegyptens vormetallische Zeit* I find a great many silex saws represented, also one (Pl. XIII, 8) made of jasper, found at Helwan in Lower Egypt, which is nearly of an identical shape with the saw before us. But I must add that in the fifth prehistoric city of Troy I found only two saws of this shape, and not one of any other shape, though the silex saws occur in such vast abundance in the preceding cities, and particularly so in the fourth." (*Ilios*, p. 583.)

Both the above-described saws would appear to have been carefully trimmed along their cutting edge, and it may be noted that this edge, in both, is not actually straight, but slightly convex—a feature incompatible with its use as a tooth in a concave sickle-casing. Altogether the facts seem to me to be entirely favourable to Schliemann's interpretation of the manner in which the greater number of these serrated flints had been actually used.

I have looked at the polish on some of the Scandinavian semilunar and crescentic flint implements, and I agree with Mr. Spurrell in regarding it as a feasible result of the operation of cutting corn; and I therefore see no objection to his suggestion that they were used as sickles, except the absence of any direct evidence in its favour. But, in regard to the British and Irish flint saws, the sickle-theory entirely breaks down. There are only very few of these flint saws, owing to their irregularity of form, that could possibly be used as sickle teeth; and as to the polish occasionally on them, it is always a narrow band not one-sixteenth of an inch broad, and therefore totally different from that which would be produced by their use as corn-cutters.

In conclusion, we must not forget that our primary basis of facts rests on the productions of two widely distant archæological areas, which must therefore be treated separately and independently of each other. The discovery of these very interesting Egyptian sickles can, at best, be only used as an hypothetical suggestion of the existence of analogous implements outside the limits of Egyptian civilisation. In support of the theory that such sickles were in use among the prehistoric people of Western Europe, I find, in this rapid review of existing materials, little or no evidence. On the other hand, the compound Polada saws are equally suggestive of a wider application, and we may, with greater probability of success, look out for the remains of similar implements among the *débris* of prehistoric civilisations, beyond that of the lake-dwellings of Europe.

ROBERT MUNRO, M.D.

Notes on Books.

"The Coinage of the European Continent," by W. C. Hazlitt (London, Swan Sonnenschein, 1893), being a work professedly written for the ordinary collector, must be judged from that point of view, particularly as it is most improbable that it will be found valuable by any who aspire to a higher position in numismatics.

The book opens with a general Introduction, which, owing partly no doubt to the complexity of the subject, but still more to the style and method adopted, signally fails to give any idea whatever of the nature of the study. Some notion of the confused fine writing and ungrammatical commonplaces to be found in these chapters may be gathered from the following sentence: "The Princes of the house of Medici—merchants and standard-bearers of Florence before they sat upon the throne—are here, and the Dukes of Parma, Modena . . . . and Ferrara, almost breathing and speaking on the metallic discs which received the impress of their features centuries ago; and we may take up a silver denier of Robert *the Devil* of Normandy, or a ducat of Foscari or Faliero, equally fresh as when they were submitted for approval" (p. 5). (The italics, and the reason for using them, are the author's own.) Or, again, from p. 21, where the artists of the Renaissance are contrasted (as if circumstances warranted a comparison) with the British, Gaulish, and Merovingian moneyers. The earlier half of the ninth century is called (p. 17) its "former moiety"; and elsewhere we are told that "the Kings of Spain *clang* to the title of Kings of the Indies" (p. 39).

The ordinary collector, if he does not care for style, at least requires a conveniently arranged book. But here it is impossible to find in any one place all that the compiler has to say on any particular subject; a fault which is not atoned for by the deficient Index. Nor is there any system in the Catalogues. It is hard to see why the Catalogue of Denominations contains notes on Christiana Religio, Moneta, Münzrecht, Nomine Domini, Sede Vacante, Trouvaille, and other such terms. If these, why not Munte-medaille, Scheidemünze, Tessera, etc.?

The compiler is evidently acquainted with Blanchet's *Nouveau Manuel*, but has not followed that author's admirable example in affixing a mark to the names of those rulers who actually struck coins, or—and this in Mr. Hazlitt is

surprising—in presenting even a slight bibliography. An introduction to a study should above all introduce the student to its literature.

We may take, as a casual test of the work, the coinage of Ragusa. In the Catalogue of Mints the author attributes the copper coins modelled on the classical type to Ragusa in Sicily, rather than to the Dalmatian city. The finding of one such coin in Sardinia seems to be the only reason he chooses to adduce for upsetting the old attribution. But the early trade of the Dalmatian Ragusa was quite sufficient to entitle it to a coinage. Whether that was the case with the Sicilian one, Mr. Hazlitt does not show. The new attribution might seem more probable if other Sicilian cities struck similar coins at the same time. On p. 341 we are promised a short account of the Dalmatian and Ragusan coinage when we come to Venice. The promise is fulfilled on p. 430 in four lines, which state that "the Venetian tenure of Ragusa is very faintly marked in a monetary sense, since the coins of that city are almost exclusively of a democratic type, and of Oriental or Austrian origin". There is hardly a point in this sentence to which exception might not be taken. Finally, the *libertina* is not to be found in the Catalogue of Denominations, nor does the Index refer to the pages on which we are told that the denominations Vizlin and Perpero were used at Ragusa.

The book is not redeemed by accuracy in smaller points. We have such spellings as Cleves (p. 29), Cléves (p. 71), and Clèves (p. 300); Luxemburgh, Oldenburgh, Augsburgh, and other "burghs" *ad nauseam;* Jeróme Napoléon (p. 79); S. Gemininus as the patron saint of Modena (p. 132); Luneville, Rugen, Schonau, Yprés, Schutzenthaler, and countless other blunders. The attribution to Majorca of Arta, the city from which the coins of Giovanni II Orsini, Despot of Epirus, were issued, is significant of the way in which the compiler has employed his dictionary of geography.

The illustrations on the whole are well carried out, and promise to be the most useful feature of the book, which may perhaps serve its purpose as a first step by provoking a competent writer to supersede it.

G. F. Hill.

Mr. David MacRitchie, the author of the pamphlet (for it is little more) entitled "Fians, Fairies, and Picts" (London, Kegan Paul, Trench, Trübner & Co., 1893), deserves all the credit of his apparently indomitable persistence. He is never tired of repeating, with slight variations, the arguments he made use of in *The Testimony of Tradition.* His contention is that the traditions current in Scotland, Ireland, and elsewhere concerning the fairies are neither more nor less than the traditions of the intrusive, conquering Celtic race relating to the aborigines. These aborigines Mr. MacRitchie describes as a race of dwarfs, and identifies with the Picts, and with the Finns of Northern Europe.

It seems to be quite in vain to entreat him to take a wider survey, to compare the Celtic traditions with those of other races, to explain how it is

that stories in all respects analogous to those told of the Picts and fairies are told by the Zulus of the spirits of the dead, by the Greeks, ancient and modern, of the Cyclopes and Nereids, and generally by peoples throughout the world of the supernatural beings which are the objects of their superstitions. The grain of truth in the midst of all the chaff of Mr. MacRitchie's theory is that some of the characteristics of the aborigines, their dwelling-places and burial mounds, arms and utensils, have been credited in Celtic tradition to the fairies, after their real origin had been forgotten; but this is a very different thing from the wholesale assertion of the identity of the Picts and the fairies.

That Mr. MacRitchie can do good work for scientific anthropology, if he will only keep his unscientific theory at arm's length, his beautiful monograph on the Ainu of Japan, which is lying before us as we write, abundantly attests. It is, therefore, all the more lamentable that he should give himself up to valueless theories and faulty methods of research.

E. Sidney Hartland.

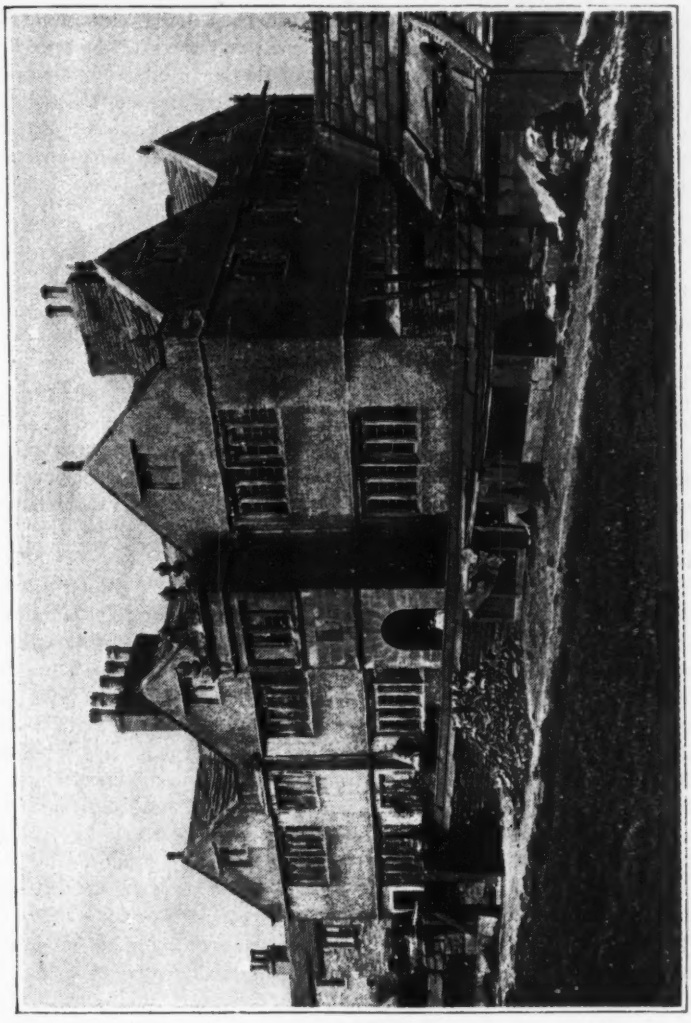
The "Spen Valley; Past and Present," by Frank Peel (Heckmondwike, Senior & Co., 1893), although written chiefly to please persons living in the district, or having associations with it, deserves to circulate amongst a much wider class of readers. The portion of the West Riding of Yorkshire with which this book deals lies north of Dewsbury, and comprises within its limits the rising towns of Cleckheaton, Liversedge, and Heckmondwike. It would not appear at first sight that the environs of manufacturing towns of mushroom growth afforded a particularly promising field for historical research. Yet Mr. Frank Peel has succeeded in throwing the glamour of romance over a landscape now disfigured by unsightly chimney-stalks and buildings blackened with their smoke.

Little is said, possibly because little is known, of the prehistoric inhabitants, and the information relating to the Roman occupation is so meagre as to be dismissed in a page.

"With regard to the Saxons and Danes", the author says, "we have more light. Both these peoples were established here. We find that at the time of the Conquest the land was held chiefly by Saxon thanes, and for more than two centuries afterwards men whose names show their Saxon origin possessed large tracts. To this day, indeed, Saxon names of places, Saxon paternal names, and Saxon manners, prevail amongst us. But the greatest proof of Saxon predominance here is to be found in the mother-tongue of the inhabitants. The common speech of the people, which superficial critics may be disposed to regard as barbarous, is full of the most vigorous Saxon words—words infinitely superior to the Latin synonyms, which in these days of School Boards seem likely to be thrust into unmerited oblivion."

Of Saxon Christianity a monument of surpassing interest exists near Hartshead Church. It is called Walton Cross, and formerly stood on a small

piece of waste land by the roadside. At the present time it is enclosed within a field behind a farm-house, but otherwise it is not protected in any



Lower Hall, Liversedge.

way. The carving has been much mutilated by the stone-throwing of mischievous boys. Is it not high time that public opinion should be brought to bear upon the owner or his beautiful cross-base to compel him to place it under cover, beyond the reach of further damage?

The author is keenly alive to the amount of valuable information which may be deduced from place-names and personal names, more especially when the variations of their forms can be made clear by reference to old deeds. At Liversedge we have the name of "Hustings Knowle", indicating the ancient place of assembly in pre-Norman times; and traces of the open field system are still discernible in the portion of the lands in Liversedge called "The Strips". When *Domesday Book* was compiled in 1086, about three-quarters of the whole area of the township of Liversedge was waste or forest land. The existence of large tracts of woodland, which were gradually "royded", or cleared, and converted into arable or pasture land, is unmistakably shown by such field-names as Hurst-bank, Hullet Hurst, Timber Close, and Oldroyd, Ryeroyd, Wheatroyd, etc.

The *Spen Valley* is well illustrated. The difference between the old order and the new is exemplified in the plates of Lower Hall, Liversedge, and Cleckheaton Town Hall.

"How to Decipher and Study Old Documents," by E. E. Thoyts (London: Elliot Stock), is a little book of 143 pages, and, according to its sub-title, is intended as "a guide to the reading of ancient manuscripts". Whether it will be of much use to anyone just entering upon documentary researches is rather doubtful, though a good book of the kind is a desideratum. There is in Miss E. E. Thoyt's little work too much padding and too few hints as to the actual difficulties met with in deciphering ancient documents. The opening chapter, entitled "Hints to Beginners", contains no "hints"; it is no more than a pleasantly-written dissertation upon handwriting in various countries and at different periods. The second chapter is upon "Character in Handwriting", and is made up of remarks, of which the following is a sample: "Truth and straightforwardness give even lines running across the page, and regular distances from one word to another. Tact is very essential; this quality requires often slight deceptions to be allowed or practised, white lies, or delusive silence; hence an unevenness in the writing is observed. It is a deviation, although slight, from the path of truth, and here and there the letters rise or fall below the lines. Untruthfulness gives greater unevenness still; but do not rush to conclusions on this point, for an unformed handwriting shows this peculiarity very often, being merely due, not to evil qualities, but to an unsteady hand employed in work to which it is unused." All of which may or may not be very true—we are going to adopt the author's advice against rushing to conclusions on the point—but we should like to have the young beginner's opinion when struggling with his first "hæc est finalis concordia". By-the-bye, Miss Thoyts gives an example of a Fine, which has been taken without acknowledgment from Mr. Walter Rye's *Records and Record Searching.*

Had the authoress stuck to her text, and illustrated it by a few good facsimiles, printed with the contractions extended, and with translations, the

tyros whom she is desirous of helping would have had reason to bless her name. As it is they may be attracted by the title into purchasing her book, but they will be little the better equipped for deciphering old documents after its perusal. The few illustrations are very badly done, and the documents have been reproduced upon so small a scale, that their very appearance will repel many a beginner from a closer acquaintance with the originals.

EDWARD OWEN.

"COLLECTANEA CANTIANA," by GEORGE PAYNE, F.S.A. (London, Mitchell and Hughes, 1893), contains in a handy form the result of the author's archæological researches in the neighbourhood of Sittingbourne and other parts of Kent. A good deal of the information has already been published elsewhere, but without those connecting links which long experience, thought, and careful comparison have supplied. In the Preface Mr. Payne expresses a hope that "in the present work many of the imperfections in my scattered papers have been removed, and that the amplifications will render the district of which it treats more intelligible and useful to the student".

The book is conveniently divided into chapters, dealing successively with the pre-Roman, Roman, and Anglo-Saxon periods; and concludes with very interesting sections relating to the author's experiences whilst surveying the old roads of Kent and the northern outskirts of the Forest of Andred.

The remains of the pre-Roman period encountered by Mr. Payne seem to be very scanty indeed, and he therefore argues, with some show of reason, that "the bulk of the Celtic population must have dwelt further inland, near the great woody fastnesses of the eastern, southern, and western divisions of the county, and along the northern confines of the Weald of Kent".

In contrast to the small number of prehistoric antiquities found in Kent, the Romans have left behind them abundant evidence of their occupation of the county, chiefly in the shape of sepulchral deposits on the line of, or near to, the great military road from London to Dover. Amongst the most important finds are those made at Milton and at Bayford, a field called Bexhill near the former place being celebrated for having yielded more Roman leaden coffins than any other cemetery in England or elsewhere. A very beautiful leaden coffin-lid from this locality, ornamented with medallions of Medusa's head, lions, vases, etc., is illustrated on p. 26. The interment disclosed during the course of excavations for brick earth and chalk, in a field near Bayford, in March 1877, proved to be unusually rich in objects of ancient art, amongst which were several beautiful glass vessels, and a remarkable bronze lamp-stand with a crescent-shaped handle.

Mr. Payne discloses his pardonable weakness for the good things of this life by the sympathetic remarks he makes on p. 17 anent the choice bivalves known as "Milton Natives", and on one or two of his archæological expeditions he and his friends appear to have had what the Americans call "a high old time", as on the ever memorable occasion thus graphically described:—

"Besides the above-named gentleman (Mr. George Dowker, F.G.S.), our party on this enjoyable day (21st July 1882) included Mrs. Payne, Miss Claypole, and Mr. Roach Smith. Luncheon was served at the mouth of the Otterham Creek, upon the greensward, as the tide was rising, and afterwards our distinguished friend entertained the ladies with anecdotes of past experiences,[1] and sang to them from one of Planché's extravaganzas, while Mr. Dowker and the writer prosecuted further research." The happy mingling of conviviality

Roman glass bottle found at Bayford, Kent.

and science on the Medway Marshes on the 21st July 1882 has been considered worthy of being rendered immortal by a plate, in which the remnants

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[1] "And told, to make the time pass by,
Droll legends of his infancy."
(*The Bab Ballads.*)

of the feast form the most conspicuous object in the foreground, whilst Messrs. Dowker and Payne are to be seen in the far distance, like giants refreshed, "prosecuting further research". The only puzzle is to find "our distinguished friend entertaining the ladies".

We have devoted so much space to Mr. Payne the *gourmet*, that we have but little space now left for Mr. Payne the archæologist, and so we must refer the reader to the book itself for any further information he may require.

The *Collectanea Cantiana* has one merit, which covers a multitude of sins, namely, its convenient size; but there are one or two points in the book that are capable of improvement: (1) the lists of antiquities might very well have been printed in smaller type; and (2) the map showing the roads could with advantage have been made larger, by dividing it into sections. With these exceptions we have nothing but praise for Mr. Payne's instructing and entertaining little volume.

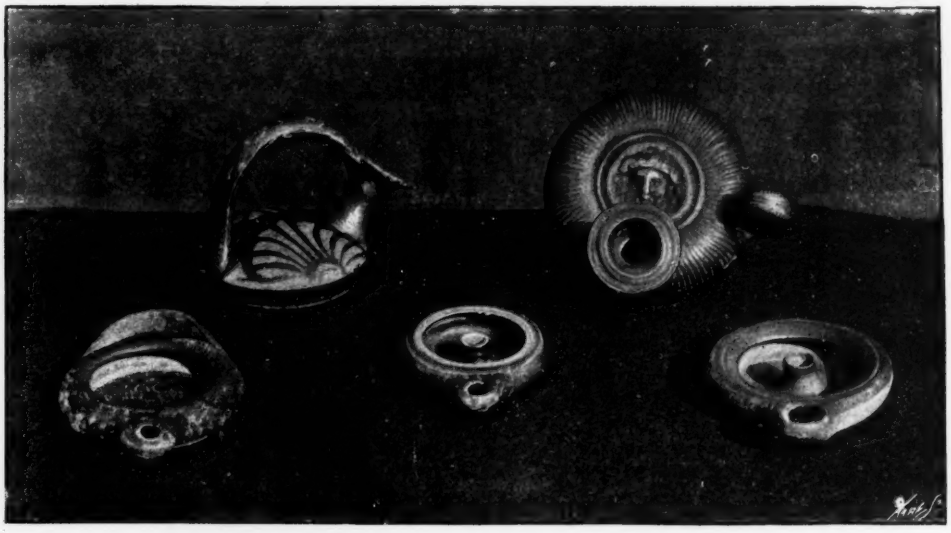
"ANTIQUE TERRA-COTTA LAMPS," by WILLIAM CUDWORTH (London, Chas. J. Clark, 1893), is a tastefully got up *brochure* containing a dissertation on ancient terra-cotta lamps generally, with special reference to the author's own collection, which is now on view at the Bradford Art Museum. Mr. Cudworth's lamps have been chiefly acquired from the Cesnola and Sandwith collections, and they were derived from tombs excavated in the buried cities of Salamis, Idalium, Kitium, etc., in the Island of Cyprus. Typical specimens are illustrated of Greek, Roman, and Etruscan lamps, and the author's remarks form an admirable introduction to a subject that well deserves even a more elaborate monograph than the present one. Let us hope that Mr. Cudworth will receive sufficient encouragement from the sale of this work to induce him to enlarge the scope of his undertaking at no distant period.

Terra-cotta Lamp in Mr. Cudworth's collection.

Amongst the many facts to be learnt from the study of antique lamps, perhaps none is more striking than the lack of invention exhibited in improving its lighting capacity over a very long period. *A propos* of this, Mr. Cudworth remarks:—"Antique lamps, however, are by no means so varied in shape as the subjects depicted upon them. Indeed, it is remarkable how little advance is observable in the shapes of terra-cotta lamps, and in

their adaptability for domestic use, during the Egyptian, Greek, and Roman periods. In my own collection, embracing a period of nearly a thousand years, little variation will be observable in the form of the lamp or its illuminating adaptability. This slow rate of progress prevailed until the introduction, during the Roman epoch, of bronze lamps for suspension in the household or temple, which were more elaborate in form."

The most primitive kind of lamp consists of a shallow open cup, filled with oil, and having a wick of pith. This was improved upon in the course of time, first by providing a spout for the wick to lie in, and subsequently by covering in the cup and providing it with a handle, so that it could be carried



Greco-Etruscan Lamps in Mr. Cudworth's collection.

about without the oil spilling. The ordinary terra-cotta lamp of classical antiquity never advanced beyond this stage, so that most of the specimens in Mr. Cudworth's collection are interesting more on account of the artistic taste lavished on their decoration, rather than for any ingenuity they display as appliances for lighting purposes. The dripping of the oil from the wick must have been as great a source of annoyance to the Roman matron as the dripping of candle-grease is to the English housewife, yet no contrivance was hit upon for obviating this defect until metal lamps came into common use.

Our modern lamps err in the opposite direction, the multiplicity and perfection of the contrivances which make them admirable as illuminating

machines being beyond question, whilst the art they exhibit is generally beneath contempt. As an instance of the difference between the ancient and modern in this respect, compare the beautiful Greco-Etruscan lamp-feeder in Mr. Cudworth's collection with the oil-can of to-day.

"SCANDINAVIAN OLD LORE."—1. The Calmar Union Document of 1397; 2. The Rök Stone in Sweden; 3. The Fonnaas Brooch in Norway; 4. The Swedish Etymological Dictionary.

A new volume of the *Transactions* of the Swedish Academy of Antiquities has just been issued. Among other articles, it contains papers on subjects 1 to 3, to which I direct attention.

As to the Calmar Union Document, Olof Simon Rydberg prints the original text, with a facsimile specimen of the writing and the seals. He discusses the whole question with great sagacity, and shows that it never was carried out, chiefly from the secret opposition of the Norwegian magnates, who declared that the Crown of Norway was *elective*, as represented by St. Olaf. The later and garbled copy published by the Danish King Erik in 1425 and 1435 only led to the reaction in Sweden, and its final freedom from Denmark under Gustavus Vasa.

The Swedish Rök Stone (*Old N. Runic Monuments*, folio, vol. iii, p. 41; *Quarto Handbook*, p. 32). In the just published volume of the same *Transactions* there is a long paper (pp. 1-79) on this monolith, with its near 780 Runes, the largest runic stone-book yet found, whose date is about the ninth century, by the learned Prof. Sophus Bugge of Christiania. In the same volume is another paper on this stone by Prof. Viktor Rydberg, filling forty-six pages.

The Fonnaas Brooch, Norway (*Old N. Runic Mon.*, folio, p. 101, vol. iii; *Quarto Handbook*, p. 67). The same tome contains a long essay (pp. 79-110) by the learned Prof. Sophus Bugge of Christiania on this silver fibula, the largest found in Norway, with a repetition of the engraving from a duplicate plate given by me to the Christiania Museum. In this work Prof. Bugge abandons his former verdict, that the Runes were meaningless (strong contractions), and now gives a reading and translation.

I conclude with announcing the welcome appearance of a second part of the *Etymological Swedish Dictionary*, by Docent Fredk. Tamm of Upsala. It runs from Birling to Fal. May Part 3 appear much quicker than Part 2! It is an excellent work. GEORGE STEPHENS.

MR. HENRY GRAY, of Leicester Square, announces the publication of "VIEWS OF THE OLD HALLS OF LANCASHIRE AND CHESHIRE", twenty-eight copper-plate engravings, drawn and mostly etched by the late N. G. Philips between 1822 and 1824. The descriptive letterpress is contributed by local writers.

Notes on Archæology and Kindred Subjects.

THE PAINTED PAVEMENTS AT TELL EL AMARNA.

(*See Coloured Frontispiece.*)

THE use of mosaic floors is familiar enough in classical and modern times, but painted floors have probably never been attempted by any people but the barefooted Egyptians. In the palace of King Akhenaten, built about 1400 B.C., this decoration was usual, and in my excavations I discovered two large halls covered with such work. The larger and more perfect floor was nearly 60 by 20 ft., and most of it was in good condition still, notwithstanding the destruction of the palace, and the thin coat of only a foot or two of earth which covered it. Some of the best portions of it I copied full size in colour, and the accompanying Plate shows two of the group of calves and plants. These coloured copies will be published, with Plates of other remains of the palace, etc., and an account of the antiquities, shortly after Christmas.

The striking feature of the work at Tell el Amarna is its peculiar naturalistic style, differing in that from any other Egyptian art. It belonged to a new ideal which was vigorously carried out by King Akhenaten, but which entirely perished after his death. The ability to seize instantaneous action, and to render it from memory, was here developed far further than had ever been done before; in fact, this artist may be considered the first man to express rapid motion. The destruction of nearly all the work of this new style renders these pavements of unique value, and they are now guarded by a permanent building, and can be seen by any travellers visiting Tell el Amarna, which is a little below Asynt.

WM. FLINDERS PETRIE.

ROMAN ALTAR AT LANCHESTER.

A RECENT discovery has thrown some light on the Lanchester altar noticed in the last number of THE ARCHÆOLOGIST (p. 121). It appears that the *vexillatio Sueborum*, which erected the altar, was probably levied in a *civitas Sueborum* which existed near Heidelberg, inside the boundaries of the Roman Empire, during the second and third centuries. These Suebes probably formed a cavalry troop; and are therefore distinct from the infantry cohort mentioned by Dr. Hooppell. The latter, indeed, is almost certainly a cohort of Lingones,

and so doubly different from the Suebes. We need, I think, have no hesitation in now deciding that the syllable LON, which is used to describe the Suebes, is an abbreviation of the Roman name of Lanchester. Whether that name was Longovicium, or some other name beginning with *Lon*, I do not know.

F. HAVERFIELD.

Oxford, 15th Oct.

A WEDDING DANCE-MASK FROM CO. MAYO.

IN *Folk-Lore* for March 1893 a wedding dance-mask was described by

Wedding Dance-Mask from Co. Mayo.

Prof. A. C. Haddon, who has since forwarded us a photograph of the object here reproduced. The mask, which is entirely made of straw, is of conical shape, and is surmounted by a sort of finial formed of three plaited rings. The cross-section is oval, and the mask has a slight cant or rake. The following account of the use of the mask is taken from *Folk-Lore* (vol. iv, p. 123):—

"Whenever a wedding takes place, gangs of men and boys appear on the

scene, dressed up in women's clothes and with straw masks completely covering their heads, in order to dance at the wedding. A gang consists of twelve men; the captain of the gang asks the bride to dance with him. It is thought to bring bad luck if anyone recognises the 'straw-boys', as they are called."

THE FORDOUN OGAM INSCRIPTION.

THE following account of a further examination of the supposed Ogam inscription at Fordoun, discovered by Mr. Alexander Hutcheson, has been communicated to the Editor by Lord Southesk; but in giving permission for its publication his lordship wishes it to be made clear that he does not express doubt of the Fordoun Ogam in the sense of strongly disbelieving in it, and only wishes to record a verdict of "not proven", pending renewed examination:—

"On the 22nd of September I visited Fordoun with Prof. Ramsay, in order to inspect the stone in the (so-called) Chapel of St. Palladius, on which an Ogam inscription was reported to exist (see letter in THE ILLUSTRATED ARCHÆOLOGIST, No. 2, p. 124), as well as the Romanesque inscription on the face referred to in the "Report on the Sculptured Stones" in the *Proceedings* of the Society of Antiquaries of Scotland. Through the kindness of the Rev. Mr. Menzies the stone had been placed in a good light near the door of the chapel, and Prof. Ramsay and I examined it with the greatest care, comparing the original inscription with the photographs. As regards the Ogams, the conclusion arrived at by Prof. Ramsay (in which I fully concurred) is that their existence is doubtful, at present neither to be affirmed nor denied. Markings greatly resembling Ogam groups most certainly exist, but there are several considerations which prevent frank acceptance of them as significant characters. Chief among these, to my mind, is the absence of a definite stem-line. The supposed Fordoun Ogams are not distinctly isolated, and this leads to another consideration that militates against their acceptance. I refer to the remains of a diagonally-braided or interlaced decoration, which seems to have occupied the whole length of the edge of the stone. It seems to me that in many, if not all, of the supposed Ogam scores, the directions of the lines suggest that they are merely portions of the diagonal ornament. A few groups near the centre of the edge are, however, more vertical in character, and strongly resemble Ogams. I cannot find clear warrant for the details in Mr. Hutcheson's diagram, and, even accepting them, no probable legend results."

SOUTHESK.

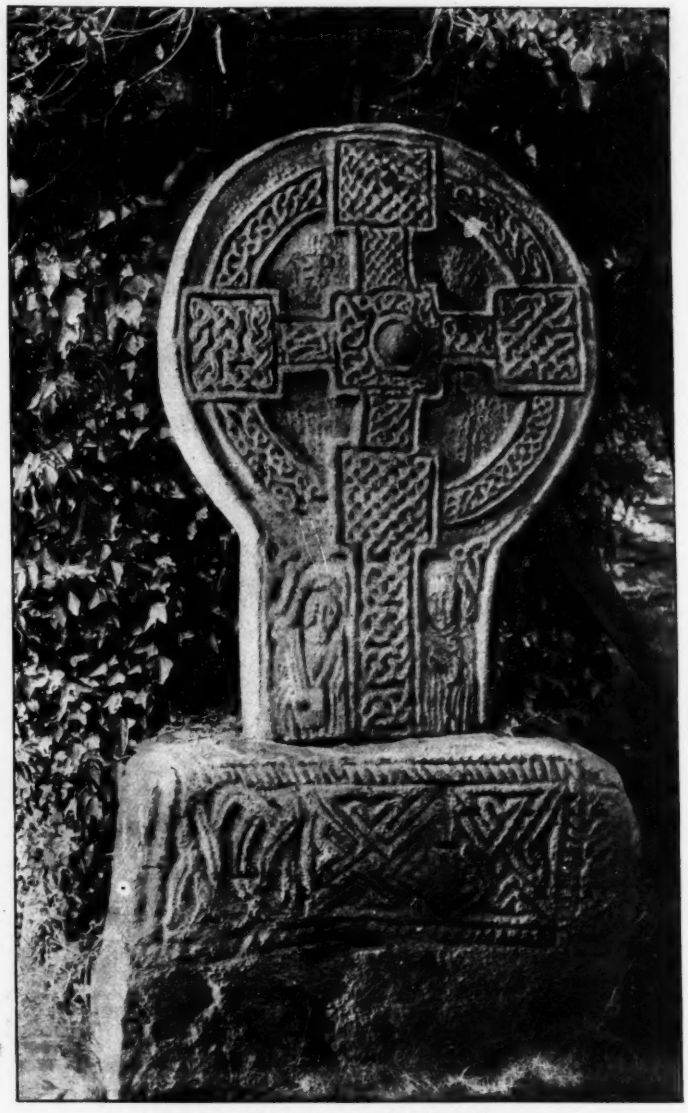
THE EARLY CROSSES OF GLAMORGANSHIRE.[1]

THE Committee of the Cardiff Museum hope shortly to extend their collections in the direction of Celtic antiquities, by the acquisition of casts from Celtic art in coins, metal-work, and sculpture; and are now preparing to make

[1] We are indebted to the Cardiff Naturalists' Society for the loan of the blocks of these crosses.

The Cross of Houelt, son of Res, at Llantwit Major.
(*From a photograph by T. Mansel Franklen, Esq.*)

moulds from the highly interesting pre-Norman crosses existing in Glamorganshire, at Margam and Llantwit Major, more especially. The scheme meets with favour among those who possess the monuments. The casting will be



The Great Wheel Cross of Conbelin at Margam.
(*From a photograph by T. Mansel Franklen, Esq.*)

commenced with the fine group at Margam Abbey, where, by the care of Miss Talbot, all these priceless works have been arranged within the church.

T. H. Thomas.